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THE PATHOLOGY AND PATHOGENESIS OF ECZEMA AND DERMATITIS

THE IDENTITY OF THE TWO DISEASES *

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NEW YORK

With a tenacity for tradition positively British, and an ancestry worship almost Chinese, dermatologists have clung to the views of their revered dead and to obsolete designations, less with wisdom than with a certain commendable if sentimental loyalty. The term eczema is derived from the Greek, meaning to boil up, to bubble. Actually, the picture of bubbling is suggested as much and as little by eczema as by herpes, pemphigus, or any other vesicular or bullous disease. Thus, even as a simile the designation is defective. This in itself would be a matter of minor import, did not the term lead us astray with reference to a closely related or indeed actually identical disease, simple dermatitis. It is the object of the present paper to illustrate this identity, and to suggest the abandonment of the word eczema, or at least to restrict its use to a precise group of cutaneous manifestations. In a measure the disadvantages of a purely figurative appellation will be counteracted as its limitations are realized and its limits defined. If the term eczema survives, it will do so in the sense in which Norman Walker regards it, as a dermatitis of the cause or nature of which the observer is ignorant. It will then indicate a diminishing group from which, little by little, as our knowledge grows, the component elements will be transferred to the ever increasing body of dermatitides of known origin.

It would be more rational to eliminate the term entirely, and to speak of dermatitis of known etiology on the one hand, and of unknown etiology on the other, the latter corresponding to what has hitherto been called eczema. It might of course be permissible to speak of eczema of known and unknown origin, with the understanding that eczema is a dermatitis. The objection to this resides in the fact that there is no sound reason for the existence of an inexact word when an exact one may be substituted. The poet's famous query as to the value of a name may in general be a thrust well aimed, but in science it is not, and concerning the subject at hand the misnomer is vicious, because it implies invalid and indefensible distinctions.

A description of the clinical features of eczema, since these are well known, may be dispensed with, save in so far as from time to time such adversions may be required in order to maintain the thread of discussion. By eczema shall be understood what is commonly included under this caption in any representative textbook on dermatology. By simple dermatitis shall be meant those forms of cutaneous catarrh represented by various types of dermatitis venenata, occuptional dermatitis and the like. Both groups are characterized by itching or burning and by more or less extensive erythematous eruptions, associated with papules, vesicles, pustules, weeping, crusting, scaling and lichenification. The combination of these lesions, their extent, the course of the disease, all depend in part on the nature of its pathogenic agent or agents, and in part on the degree and duration of their activity.

It is certain that objectively eczema and simple dermatitis are indistinguishable. The sites affected, the polymorphous character, the nature of the primary and consecutive lesions, the manner of involution with crusting and scaling, or scaling alone, the subjective symptoms, all are alike in both. Wherefore it appears unreasonable to separate them clinically. An apparent point of departure is reached anamnestically, however, in that a known cause is ascertainable in dermatitis, but not necessarily in eczema. Closer scrutiny, nevertheless, reveals that in the former, although the cause is recognizable, it is pathogenic only in selected individuals, so that it at once becomes obvious that the operation of the external agent alone is incapable of provoking the morbid process. Furthermore, a discriminating analysis of cases of eczema so frequently discloses the presence of a probable local excitant, that in those cases in which one seems lacking, the want must be ascribed less to its actual absence than to limitations of the patient's or physician's power of observation which prevent its discovery.

Microscopically, the two conditions are alike, as will appear below. Therapy throws a certain, though perhaps less conclusive, light on the identity of the two processes. The milder cases of both respond to similar local therapy. The severer cases require the same local as well as general measures for a cure to be effected. In thus broadly surveying the field, then, two conditions are under inspection which are clinically and histologically identical; the pathogenesis of which follows in the same channels, and the treatment of which is successful only when conducted along the same lines. It is absurd to continue to separate two conditions which in every respect correspond to each other, and to the support of their absolute identification the ensuing will be dedicated.

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* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

HISTOPATHOLOGY

Unna[1] divides eczema into two phases, a vesicular and chronic or true form. The vesicles are single chambered, variable in size, contain three parts of serum and fibrin to one of pus cells, and lie in the malpighian layer. Pressure exerted by the vesicles causes flattening of the surrounding rete cells. As the epidermis grows upward the vesicles rise, finally reaching the corneous layer, which consists of nucleated cells. The rete pegs are enlarged in all diameters, but their general shape is not materially altered. In the papillae and pars reticularis a dilatation of the vessels takes place, the endothelium of which is swollen, while a perivascular infiltration of lymphoid cells is present.

Chronic eczema exhibits three distinct epidermal features, parakeratosis, acanthosis and spongiosis. The first is an expression of incomplete keratinization, which is evidenced by persistence of the nuclei in the stratum corneum; the second is due partly to proliferation of the cells in the rete and pegs, and to interstitial edema; while the last, spongiosis, is entirely due to interstitial edema. Spongiosis imparts a curious aspect to the rete. The intercellular spaces are broadened by accumulated fluid, forming a tracery of canals which simulates the arrangement seen in a transected sponge. This phenomenon is at the bottom of chronic vesiculation, as will presently appear. In turn, the vesiculation and spongiosis itself cause crust or scale formation. Ivan Bloch[2] emphasizes a productive inflammation in the cutis, persistent vascular dilatation with engorgement and surrounding lymphoid cell deposits. Pautrier[3] divides the contents of vesicles into an uppermost layer consisting of serum, a second of serum and leukocytes, and a third of leukocytes. These three again constitute the roof of the vesicle, leaving a space below twice as broad, filled with pus and degenerated epithelial cells. For the rest, Pautrier, as well as other authors, notably Darier,[4] Ehrmann and Fick,[5] and Walker[6] agree with Unna.

The varieties of eczema, such as the erythematous, papular, vesicular, weeping, crusted and scaling, will be described shortly. Verrucous eczema depends on excessive acanthosis; lichenified and elephantiasic depend on the degree of productive inflammation and lymphatic engorgement, respectively, present in the cutis. These types are incidental rather than basic and their detailed elaboration would add nothing to the present paper.

In my own studies I have been able to confirm the foregoing. The formation of the vesicle of acute eczema is different from that of the chronic type. In the former an intracellular or parenchymatous edema in the rete is the starting point. Accumulation of fluid in the cytoplasm causes the cells to enlarge and become round, while the nucleus is pushed toward the periphery of what is now a sac of fluid. Microscopically, such a cell resembles a cavity. This process is known as *altération cavitaire*, the designation having been suggested by Leloir. In chronic eczema the vesicle depends on interstitial edema. The saturation of the intercellular spaces stretches the epithelial threads to the breaking point, freeing the cells which then become spherical. Thus, whether the edema begins within or without the cells, the latter finally become rounded out. When numerous contiguous cells are so altered they lie in a space, the vesicle proper, and are surrounded by serum, fibrin and migrated leukocytes, chiefly of the polymorphonuclear variety. The rounded epithelial cells resemble toy balloons, an observation which caused Unna to call the process ballooning degeneration. The wall of the vesicle is formed of contiguous epidermal elements flattened by the pressure of the vesicle contents. Although the vesicles are always single chambered, they are often numerous, and when separated by thin walls may simulate multilocularity. Usually in acute eczema and invariably in chronic, spongiosis, acanthosis and parakeratosis, as affirmed by Unna, are present.

Erythema is due, in both the acute and chronic stages, to dilated vessels; papules, to edema of the papillae, infiltration therein, hyperplasia of collagen, or all three; and scaling to parakeratosis. In the acute form weeping is almost invariably due to the rupture of vesicles, while in the chronic it may be due to this, but is more frequently occasioned by the interstitial edema. The frail and imperfectly keratinized corneous stratum is washed away by the saturation of the epidermis, thus exposing the rete, out of which wells up the excess of serum. From whatever source, the fluid dries and forms crusts, additional elements of which are bacteria, leukocytes, exfoliated corneous and degenerated rete cells and erythrocytes. Should the vesicles have become purulent, the crusts assume the characteristics of dried pus.

SIMPLE DERMATITIS

Very little attention has been devoted in the literature to the microscopic study of simple dermatitis. Kulisch[7] produced vesicles experimentally with croton oil and cantharides, duplicating Hebra's classic investigations, which had caused the latter to conclude that eczema was always of external origin. It would be redundant to paraphrase Kulisch's account of his results, as they absolutely correspond to a description of eczema. More recently Weidenfeld,[8] working along similar lines, corroborated the above findings.

In each of the three instances just cited the investigators were working on the problem of eczema, and had no thought of dermatitis, but it is obvious that they made no distinction between the two processes, for they produced what they called eczema by the use of external agents. The latter were poorly selected, since they are vesicants and produce blisters on practically all skins. Microscopically, however, the lesions were those of acute eczema.

It has been my good fortune to examine specimens of skin excised from patients suffering with various forms of acute and chronic dermatitis due to chemical agents vocationally employed. They were identical in their minute anatomy to eczema in its various forms.

RÉSUMÉ

Microscopically, then, eczema and simple dermatitis are one and the same process. In terms of general pathology they represent, as the case may be, acute, subacute, or chronic catarrhal inflammation. As John-

1. Unna: Histopathologie der Hautkrankheiten, Berlin, 1894, p. 194.
2. Bloch, I.: Unna's Lehren, Berlin, 1908, p. 434.
3. Brocq, Pautrier and Ayrignac: Les caractéristiques symptomatiques histologiques de l'eczema, papulo-vésiculeux, Ann. de dermat. et de syph., 1911, p. 525.
4. Darier: Eczematides, Précis de dermat., Paris, 1909, p. 72.
5. Ehrmann and Fick: Komp. der speziellen Histopathologie der Hautkrankh., Vienna, 1906, p. 17.
6. Walker: Introduction to Dermatology, New York, 1899, p. 89.
7. Kulisch: Sind die durch Canthariden und Crotonöl hervorgerufene Entzündungen der Haut Eczeme? Monatsh. f. prakt. Dermat., 1893, **17**, 1.
8. Weidenfeld: Beitrag zur Pathogenese des Eczems, Arch. f. Dermat. u. Syph., **111**, 891.

ston[9] says: "Eczema differs not at all from the other fibrinous lymphocytic inflammations except in the histologic peculiarities occasioned by its site." A belief is nurtured in some quarters that dermatitis begins with epidermal changes, those in the cutis being secondary, while the reverse obtains in eczema. Weidenfeld's studies, however, adequately disprove this. Furthermore, such reasoning is fanciful, for all inflammatory processes, by their very nature, depend on vascular changes, and it is impossible to distinguish microscopically, when alterations have occurred both in the epiderm and corium, which preceded and which followed.

PATHOGENESIS OF ECZEMA

There are three possible ways by which the pathogenesis of eczema may be explained: through internal causes, external causes, and the activity of outside agents in predisposed individuals.

Internal Causes: In the earliest French literature eczema was considered a dartre. After the concept had been discarded by Willan[10] as meaningless, Hardy[11] reapplied it clothed out as the "dartrous diathesis." A dartre was a vice or poison capable of protean manifestations, one of which was eczema. In modern France this idea has been perpetuated as arthritism, in England as the gouty diathesis. Besnier[12] elaborately included among the internal causes of the disease five groups:

1. Predisposing: heredity, syphilitic and alcoholic ancestors, ancestors who suffered with other skin diseases, constitutional weakness, diabetes, lithiasis, bronchitis, etc.
2. Physiologic: dentition, pregnancy, lactation.
3. Nervous.
4. Functional: digestive, assimilatory and excretory disturbances.
5. Local predisposing: ichthyosis, keratosis pilaris, seborrhea, skin folds and body orifices.

One and all of these excitants has had its champions. Three of the list, however, deserve emphasis, the nervous, digestive and metabolic causes. A varied fabric of fantasy has been woven about the rôle played by the nerves in producing eczema, and yet undoubtedly a connection exists. This may not be direct and probably is not, but there can be no doubt that indirectly, through its effect on body function, what is popularly known as nervousness may disturb metabolism sufficiently to provoke cutaneous diseases. It will save space to quote in toto a passage from another paper[13] on this theme:

> Tilbury Fox finds the disease due to "perverted innervation." Anderson mentions mental excitement, grief, overstudy, and sedentary habits among the causes; Malcolm Morris, mental depression and nervous shock, a point of view acceptable to Johnston, who denies, however, that there are any demonstrable nerve lesions. Bulkley enumerates neurasthenia, nervous and mental shock, reflex internal neuroses, such as those due to dentition, and reflex external neuroses, such as scratching and irritation, as well as structural and functional neuroses.

That digestive disturbances are prominent in producing eczema, as the entire literature of the infantile form of the disease illustrates, is beyond question. Such causation, numerous authors agsee, is not restricted to babyhood, however, and constipation is widely regarded as intimately associated with eczema, if not actually provocative thereof, the two conditions possibly being expressions of the same underlying cause.

More important than the preceding is the influence of metabolism. Johnston[9] asserts that "all eczemas must have a basis of failure of metabolism for their development." He alludes especially to ductless gland disturbances, and those of nitrogen chemistry. Neisser[14] includes among probable causes chemical substances elaborated in the cachexias, diabetes, and gout, while Tilbury Fox[15] adds nephritis to this list. Towle and Talbot[16] find disturbances of sugar and fat metabolism in infantile eczema. More recently White,[17] by a series of percutaneous tests, has demonstrated that many adults with eczema are allergic to egg albumin, fat free, milk and oatmeal water, and that in a certain number of cases lactose and salt-free butter may be at fault. A considerable proportion of these cases suggest that sensitization to given proteins is responsible for some forms of the disease.

External Causes: There are three groups of alleged external causes, local predisponants, irritants and micro-organisms. Besnier[12] includes among local predisposing faults, as already mentioned, ichthyosis, keratosis pilaris, hyperhidrosis, seborrhea, and skin folds. Brocq[18] regards dyshidrosis as a most frequent offender, while Jadassohn[19] actually considers it as a form of eczema itself. Great unanimity is displayed among authorities as to the pathogenic function of this group. Little need be said concerning local irritants, since their action is obvious. They are mechanical, physiologic and chemical; as friction, pressure of implements, actinic rays; drugs, cosmetics, dyes; chemicals, such as cleansing powders, disinfectants, and substances employed in art, science and manufacture. Artificial dermatitis, occupational and professional eczemas are examples of the conditions they provoke.

As to micro-organisms, Unna[20] attempted to prove the existence of a special eczematogenic bacterium called the morococcus. A perusal of the Transactions of the Fourth International Dermatological Congress will show how vainly he contested and how completely he was vanquished. The organism he sponsored was generally regarded as the white skin staphylococcus. Possibly the presence of micro-organisms in the lesions intensifies the process, or perhaps their toxins do, but their specific pathogenicity has been disproved.

The Combined Internal and External Causes: Willan,[10] Neisser[14] and Rayer[21] regard eczema as due to external agents operating in the predisposed. Fox[15] and Fordyce[22] apply this principle to eczemas caused by chemicals; and Hall[23] and Jacquet and Jourdanet[24] to those arising occupationally.

9. Johnston: Eczema: a Sketch of Its Process and Management, New York Med. Jour., Oct. 20, 1906.
10. Willan and Bateman: A Practical Synopsis of Cutaneous Diseases, 1815, p. 252.
11. Hardy: Piffard's Translation of the Dartrous Diathesis, 1868.
12. Besnier: Pratique Dermat., **2**, 1.
13. Heimann: A Critical Review of Eczema and Dermatitis, etc., Jour. Cutan. Dis., **34**, 259.
14. Neisser: Ueber den gegenwärtigen Stand der Lichenfrage, International Dermat. Congress, 1894.
15. Fox, Tilbury: Eczema: Its Nature and Treatment, 1870.
16. Towle, H. P., and Talbot, F. B.: Infantile Eczema and Indigestion, Am. Jour. Dis. Child., October, 1912, p. 219; Jour. Cutan. Dis., **31**, 54.
17. White: Anaphylaxis in Eczema, Jour. Cutan. Dis., **34**, 57.
18. Brocq: La question des eczemes, Ann. de dermat. et de syph., January to March, 1900.
19. Jadassohn: Fourth Internat. Congress, 1900, p. 71.
20. Unna: Parasitic Origin of Eczema, Fourth Internat. Congress, 1900, p. 9.
21. Rayer: Traité théorique et pratique des maladies de la peau, 1835.
22. Fordyce, J. A.: The Modern Conception of Eczema, THE JOURNAL A. M. A., June 13, 1903, p. 1621.
23. Hall: Brit. Jour. Dermat., 1905, **17**, 181, 203, 247, 287.
24. Jacquet and Jourdanet: Etudes des dermites professionelles, Ann. de dermat. et de syph., 1911, p. 11.

THE PATHOGENESIS OF SIMPLE DERMATITIS

This division is purely artificial, but temporarily may be allowed, partly for the sake of clearness, but more especially because it indicates how purely arbitrary is a separation of eczema from dermatitis. Everything already stated in connection with eczema due to external causation and combined external and internal origin applies equally to dermatitis.

THE PATHOGENESIS OF ECZEMA AND DERMATITIS AS A WHOLE

It is overwhelming, when first confronted with the task, to find a way in which to bring into accord so many causes capable of producing a relatively consistent clinical picture. The difficulty, though, lies not in the number of the causes, but in the fundamental misconception that eczema is a disease. It is rather, like coryza, bronchitis or nephritis, for example, an expression of disease. In order to comprehend this fact we need only recall the doctrine of cutaneous reactions, of which urticaria is a simple example. Innumerable causes provoke hives, but their clinical picture always remains constant. After all there are not a great many manners in which it is possible for the skin to respond to disease-producing agents and one of these is the catarrhal inflammation. Thus eczema and dermatitis are in effect a generic reaction to a wide variety of excitants, an index, as it were, of morbidity. Bazin in 1866, according to Brocq,[18] said that eczema is a "special reaction of the skin to diverse causes." To realize this is to possess the key to the solution of the entire problem.

The internal causes of eczema, disturbances of digestion, of the nerves, of metabolism, of the endocrinous glands, anaphylaxis, have been mentioned. Not every one, however, in whom such conditions exist gets eczema. Thus, an external factor must be sought, a local excitant to precipitate the attack. It is, as a matter of fact, at times impossible to find either a general or local reason for the skin changes. This is no argument that there is none, but simply an indication of inability to demonstrate it. If there were actually no cause for the eruption, if the patient were in perfect health, it would necessarily follow that pathologic changes might exist without disease, a manifest absurdity.

Eczema of external origin is due, as has already been outlined, to all sorts of mechanical, physical or chemical agents. But if these alone sufficed to produce cutaneous alterations every one on earth would be always afflicted. The truth is that they are harmful to very few individuals exposed to their action. This establishes beyond doubt the fact of predisposition. Such a predisposition may be general or local. The first would at once identify eczema of external origin with that of internal, with the added feature of a known exciting cause. The second requires somewhat further elaboration, for local predisponants, skin anomalies, as ichthyosis, secretory disturbances, as hyperhidrosis, inflammations, as seborrhea, may act as precipitating causes in connection with general disturbances, or as predisposing causes in connection with external agents. In other words, local predisposing conditions are capable of playing a double rôle.

Dermatitis of external origin can also develop only in the predisposed, or it would be universal. Since simple dermatitis and eczema of external causation are alike clinically and histologically, since both are cutaneous catarrhs, and since in both the pathogenic mechanism is the same, it must be admitted that the two conditions are identical. It has also been shown that eczemas of internal and external causation differ from each other in only one essential respect, namely, the absence in the former of a demonstrable precipitating cause. This can scarcely be sufficient to establish eczema as a separate entity, for the quantity is mined and undetermined, and as methods of investigation are improved the former will increase at the unknown solely because it has not yet been found. It simply represents the difference between the deter-expense of the latter until the latter reaches the vanishing point. Thereupon eczema will automatically cease to exist.

This view has already been implied in the literature. Willan and Bateman,[10] Biett, Cazenave and Schedel[25] hold that there is no difference between eczema and dermatitis. Fordyce[22] says that the two are clinically and microscopically indistinguishable. Ormsby[26] is able to differentiate them only by the history, and not by their appearance. Pusey in his textbook boldly asserts the absurdity of attempting any such distinction, and because of the splendid force of his expression and his compelling logic, the entire passage in question is worth transcribing from his work:

> Hebra first cleared the subject of eczema of some of its vagueness, and also opened the discussion as to its proper definition, by declaring that eczema is dermatitis, such as can be excited in any skin by external irritants. And most authors agree, or at least admit incidentally in their descriptions of eczema that its eruption is indistinguishable from dermatitis; for example, Stelwagon says, "Inflammation of the skin of artificial origin is often similar in symptomatology to that of eczema and may, indeed, be considered identical." But many authorities are not willing to rest with this. They insist that it differs from an ordinary dermatitis of external origin by certain added factors, usually factors of personal equation in the patient. The position of Malcolm Morris may be cited as an example of the point of view of those who hold that eczema is something more than a dermatitis. Morris, than whom no one is better able to state a case, gives the following definition of eczema: "Eczema is . . . a catarrhal inflammation of the skin originating without visible external irritation and characterized in some stage of its evolution by serous exudation. . . . The definition of eczema here given excludes all forms of inflammation of the skin caused by chemical or mechanical irritants. The artificial dermatitis set up by such agents is *identical automatically with the eczematous process* and gives rise to *lesions indistinguishable from those of eczema*, but it is not eczema." This seems to me a reductio ad absurdum. It amounts to saying that two things which are the same are different because they are produced differently. The most that this statement can mean is that there is dermatitis of external origin and dermatitis of other origin which are indistinguishable, and that he would confine the conception of eczema to the dermatitis of other origin. Morris goes on: "It is evident, therefore, that there is something more in eczema than inflammation of the skin due to a local and transient cause. There is an unknown quantity beyond this, a pathological *x* which may be either some invisible source of irritation or some constitutional peculiarity or both of these factors. These identical words could be used in favor of the position that pneumonia and tuberculosis are not essentially due to the pneumococcus and the tubercle bacilli respectively. Indeed, in the old days this line of argument was used to prove that tuberculosis was a "constitutional" disease. If it were not for this pathological *x*, some factor of lowered resistance, we would all have pneumonia all the time; and who of us would escape tuberculosis? Further, his qualification that the process originates without *visible* external irritation is also certainly an unessential condition. It makes

25. Biett, Cazenave and Schedel: Abrégé pratique des maladies de la peau, 1838, p. 90.
26. Ormsby: Diseases of the Skin, 1915, p. 187.

no difference in the essential character of a dermatitis that the irritant happens in some cases to be discoverable and in others not.

Leaving out these unessential qualifications, we cannot avoid the position that eczema is dermatitis; and, as far as the lesions in the skin are concerned, this statement represents the fact.

Support of this attitude may be found in clinical experience. In an analysis of fourteen closely observed cases (Heimann[13]) the following facts stood out. An ascertainable local irritant was present in eleven; a presumable one in another case. These irritants were hair dyes, scalp lotions, resorcin, or other chemicals. Local predisposing causes could be determined in seven, seborrhea having been the most frequent. It might be maintained that because of their relation to an external irritant, such as a hair dye, these cases were not eczema, but simple dermatitis, and that therefore the deductions in this paper are not valid. To forestall this argument it is necessary only to point out that the process was not limited to the scalp, but involved the face, neck and elbow flexures. In another case in which the irritant had been applied to the bust, the entire body was involved. A patient whose illness had been precipitated by resorcin was sick for six weeks, long after the resorcin could have been active, and the course of the attack was characterized by recurrences without the reapplication of the original offending substance.

In all of the patients some general disturbance was present, such as neurasthenia, intestinal derangement, or evidences of anaphylaxis. The commonest abnormal conditions were neurasthenia and constipation, while in two instances analysis of the feces showed a protein putrefaction. Most striking, however, was the light thrown on the pathogenic mechanism of these cases by therapy. In all fourteen the average duration of the attack was sixteen days. The average duration in the patients treated locally alone was twenty-two days; while in those receiving general treatment as well, it was just under nine days, or less than half as long. The general measures consisted of colon irrigations, enemas, or the use of cathartics or sedatives, according to special indications.

It is clear from this brief clinical exposition that two main pathogenic factors were present. These were local irritants which were active beyond the site of their application and beyond their period of immediate contact with the skin, and general causes which rendered the skin susceptible to the former. In other words, the irritants merely precipitated a reaction in prepared individuals. General treatment served to lessen the susceptibility, so that the clinical experiences here outlined serve as experimental evidence favoring the argument advanced in this study.

SUMMARY

Eczema and simple dermatitis resemble each other clinically and microscopically. Thus eczema, from the standpoint of pathology, is dermatitis, differing from the latter in the clinical sense only in so far as it arises without a demonstrable local cause. For the rest, both are dependent on a predisposition which renders the patient susceptible or responsive to the influence of the determining factor. A great number of conditions, both general and local, constitute defects which augment susceptibility, while an equally formidable array of known precipitating agents has been compiled, their number steadily increasing at the cost of a diminishing body of unknown ones. The distinction between eczema, since it is dermatitis, and what is frankly regarded as dermatitis, is purely academic and is based solely on human limitations. Processes which are alike clinically, histologically, histogenetically and pathogenically are identical; wherefore, all that remains of eczema is the fact that it is dermatitis of unknown origin.

This being the case, it is scientifically disadvantageous to continue the use of the term. The whole class of conditions in question should be divided into two groups; dermatitis of known and unknown origin, respectively, of which the second would represent the ancient eczemas. But as such a change would throw a heavy tax on loyalty to tradition and on dermatologic literature, the continuance of the classic term may be allowed with the restriction that it indicates dermatitis, the immediate cause of which remains obscure. Eczema would thus cease to be accounted a disease sui generis, and would be looked on as an index of morbidity, the determination of which would become a duty. In other words, since its rational treatment would depend on a knowledge of its cause, it would stimulate the study of the dermatosis from the standpoint of internal medicine. This would be of benefit to the patient and would hold dermatology to a scientific path from which it tends only too often to be lured by the fascination of glittering, if somewhat unsound, morphologic superficialities.

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ECZEMA OF EXTERNAL ORIGIN AND ITS RELATIONSHIP TO DERMATITIS

BASED ON A STUDY OF 36,996 DERMATOLOGIC CASES, OF WHICH 6,453 WERE CLASSED AS ECZEMA*

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In May, 1912, I had the pleasure of reading a paper before the American Dermatological Association with the title of "The External Origin of Eczema, Particularly the Occupational Eczemas, as Based on a Study of 4,142 Cases." This study was based on a review of 24,459 cases of diseases of the skin observed, in nine years, in the dermatologic clinics of the Pennsylvania, University and the Howard hospitals. During the last five years I have had the opportunity of observing 12,537 additional cutaneous cases in the skin departments of the Pennsylvania and the University hospitals, of which number 2,311 were tabulated as eczema. Therefore, during the last fourteen years there have been studied 36,995 dermatologic cases, of which a total of 6,453 have been classified as eczema (14.75 per cent.). In the former series of cases, fully one quarter of those tabulated as eczema were of determinable external causation, while in the present group almost one third could be attributed to external factors.

It should be recalled that the cases tabulated in the foregoing lists have been classed as eczema because of their chronicity as to course, lasting over a period

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of weeks and months, although most of them were exceedingly acute in their clinical appearance. Hundreds of cutaneous cases were diagnosed as dermatitis in the hospitals named, particularly those attributable to plant poisoning or acute irritants, in which the outbreak ran a rapid course toward recovery, cure being effected in a few days.

The study of the external etiology of eczema may conveniently be divided into three classes: the parasitic origin of the disease; eczema from external irritants, exclusive of occupation, and trade eczemas.

Investigations into the parasitology of eczema have been made by many excellent observers. There is no definite evidence that organisms in or on the skin are causal of eczema, although cocci, usually of the staphylococcus group, no doubt have a decided influence in determining secondary lesions and complicating factors. The parasitology of the disease may be summarized by stating that the majority of dermatologists do not regard eczema as due to a specific organism, or as a parasitic disease, the various forms of which conform to different organisms; but the belief is prevalent that bacteria may play an important part in the evolution of the lesion. Numerous references on this phase of the subject may be found in a former publication of mine and in the article recently written by Heimann.

Eczema of external origin, exclusive of occupation, may be produced by any irritant in a susceptible person, or by prolonged and frequent exposures to an irritating factor in those less predisposed. We are all familiar with the many external factors which cause an outbreak, such as injuries, dyes, drugs, friction, etc. Those irritants which should be particularly emphasized are iodoform, hair dyes, dyed fur, and cosmetic preparations. Iodoform very often gives rise to a spreading inflammation of the skin, particularly when used as a dressing to a raw surface. This spreading redness, resembling erysipelas and at times a scarlatina, may not only be evanescent in course but also partake of the character of an eczema, lasting over a considerable period.

Paraphenylendiamin, which is the dye used in many hair preparations, is coming more and more to the fore as the cause of a persistent erythematous and vesicular outbreak on the ears, face and neck, which may last over a period of some weeks. This dye is also a prolific source of irritation about the neck and the wrists of those wearing brown fur and black pony coats. Numerous instances of eruptions are observed in our private work from the use of vanishing creams, so called, and all types of cosmetics. Within the last week an outbreak of some weeks' standing, of a papular type, has been seen in my office apparently due to a preparation labeled as "milk weed cream." Outbreaks have been observed from "breast developers" and also from one of the proprietary iodin ointments. Lesions from the latter preparations had been present for some weeks when the patients came under observation.

Trade eczemas offer a large dermatologic field, and many pages might be written alone on this phase of our subject. In my former publication, twenty-nine different trade groups were tabulated in which various irritants handled were causative of an outbreak. The eczematous outbreak was found in the following occupations: houseworkers, laborers, woodworkers, photographers, printing trade, painters, millworkers, bleachers and cleaners, cloth handlers, tanners, coopers, physicians, dentists, nurses, attendants and those handling drugs and chemicals, workers in sugar, candy and chocolate, bakers, barbers, bartenders or liquor dealers, handlers of oils and greases, handlers of pastes, grocers, plastering, paper and building trades, tobacco workers, furriers and hatmakers, workers in metals and minerals, handlers of dyed materials, fruit handlers, ice and ice cream makers, soap makers, packers, farmers and florists. Recently a generalized outbreak of an erythematosquamous type has been observed in five workers in munition factories. These men were all exposed to picric acid, alcohol and ether. Their portion of the work consisted of putting the wet guncotton into cans. The outbreak in each instance had been present for two weeks or more.

Nomenclature is one of the greatest faults of our specialty, dermatology. There is no more chaotic subject than exactly what eczema is and the dividing line between this affection and dermatitis. The remarks made by Zeisler are pertinent to this subject. He said that he felt like presenting the etiology of eczema, in a rather paradoxical vein, something like the following: When we had a case of eczema of which we knew the cause, then it was not eczema; and when we had a case of dermatitis and did not know the cause, then it was eczema. Or again, when we had a case of eczema which readily responded to treatment, then it was not eczema, but simply a local dermatitis; and when we had a case of dermatitis which proved obstinate to our therapeutic efforts, then we were really confronted with an eczema.

Willan and Bateman, Biett, Cazenave and Schedel and Hebra assert without qualification the identity of dermatitis of external origin and eczema. Fordyce considers that the two are identical clinically and histologically. Pusey states that "our difficulties disappear if we accept eczema to be what it is in all of its clinical characteristics — a superficial, simple dermatitis such as might be excited by external irritants." Hartzell mentions that he did not believe that there was any real distinction between many cases of so-called eczema and many cases of chronic dermatitis. Hyde stated that "there is no 'eczema' in the absence of dermatitis; is there any dermatitis without some of the accepted symptoms of 'eczema'? The doom of the word is probably written. It will survive where it belongs and with no greater repute than attaches to the outworn and the discredited."

Anderson, Fox, Jacquet and Jourdanet add predisposition as a factor in dermatitis of external origin. Heimann has recently stated the conclusion that dermatitis and eczema are identical, having the same clinical and pathologic picture.

Bowen and, I believe, the majority of dermatologists consider that artificial dermatitis offers no histologic divergences from acute eczema, notwithstanding the view held by Unna that vesiculation is not uniformly characteristic of eczema in the manner that it is of acute dermatitis.

After a thorough study of hundreds of cases and a perusal of the literature bearing on the subject, the investigator is forced to the conclusion that it is practically impossible to distinguish between dermatitis and eczema of external causation. If the outbreak is caused by certain irritants, such as plants, we call it dermatitis; if by certain other irritants, eczema. If it be of short duration and of known cause, we call it dermatitis; if of long duration an eczema. The clini-

cal picture may be the same in each, the histologic appearance identical, and yet we place the one under the heading of a dermatitis and the other is classed as an eczema. Is not our attitude inconsistent? Should we not take a firm stand and advance a step forward by classing all cases of known external causation, which have heretofore been classed as eczema, under the heading of dermatitis?[1]

CONCLUSIONS

Almost one third of all cases of eczema are of definite external origin. About one sixth of all cases of this affection are caused by the occupation of the individual.

Micro-organisms play only a secondary rôle in the causation of the disease.

Practically every occupation and every irritant may produce an eczema.

The portions of the skin exposed to the irritant determine the site of the outbreak.

The eruption not infrequently extends beyond the irritated areas, at times being observed on distant parts of the cutaneous surface and also generally in certain instances.

The usual type of eruption noted is the vesicular or the erythematosquamous.

The eruptions mentioned as occurring in the cases in this article have lasted for weeks, months and years, and showed a marked tendency to relapse.

It is rather hard to explain the susceptibility of some persons to certain irritants, while others are not affected, excepting on the theory of a pure idiosyncrasy, an anaphylactic tendency causing sensitization of the skin.

As dermatitis and eczema of external origin have the same clinical and microscopic appearances, they should be classed under the heading of dermatitis.

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TWO MODERN METHODS TO BE EMPLOYED IN THE TREATMENT OF CHRONIC ECZEMA *

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The etiology of chronic eczema remains still a subject of conjecture. Men have held decided views on this question since the disease was first recognized, and to those who seek the details of this historical controversy let me recommend the excellent summary of the subject recently published by Heimann.[2] Today there can be no doubt, I think, in the unbiased mind that internal as well as external causes play their respective rôles in the production of the disease, and I believe that at the present moment a good many men hold the opinion that the first etiologic step is the sensitization of the skin and that the second is the contact with an external irritant.

One might regard this theory as a compromise between the two earlier creeds, that is, the external and internal; but I myself find any other conjecture irreconcilable with the facts. All men admit that certain substances, too numerous even to mention, are capable of producing an eczematous eruption on the skin, but this apparent capability is limited, fortunately, to but a comparatively few skins; otherwise many occupations would have to be banished from the face of the earth. Granted, therefore, that certain substances are cutaneous excitants, how can we explain the fact that forty-nine men escape all outward inconvenience when the fiftieth man working under exactly the same conditions and handling exactly the same substance in exactly the same manner becomes affected, to such a degree, at times, that further subjection to this substance becomes an utter impossibility? Or, again, how is it possible that a pathologist who has for years dipped his hands into liquor formaldehydi with impunity suddenly becomes incapable even of entering a room where this chemical is stored? Or, once more, how does it come to pass that a botanist who has been poisoned by rhus toxicodendron for many years suddenly finds that he has become immune to the influence of this heretofore noxious oil? Something more than an external irritant is at work in these three not hypothetic individuals just cited. Something has happened in the economy of these three men to make them susceptible to a given chemical and again to render one of them no longer a victim to its influence.

What this thus far unexplained something is is the elusive x which men are now seeking so diligently, and this something has been the object of my quest for the last two years and more.

Following the lead of Schloss of New York, who worked on the urticarias of childhood in 1912, and of Towle and Talbot of Boston, who investigated the subject of infantile eczema in 1913, and of Goodale of Boston, who has studied so thoroughly the question of the pollens in hay-fever in 1913-1914, I have tried to solve this etiologic puzzle by means of cutaneous food inoculations and by the study of the feces.

At the end of my first year's investigations I made to the American Dermatological Association a preliminary communication[3] with the following conclusions, based on a study of sixty-four cases of chronic eczema:

From the facts thus recorded and from other investigations not detailed we make the following deductions on the question of food in its relation to chronic eczema at various ages of life:

A. Eczematous infants usually present in their stools an excess of fat or starch. An excess of the former element generally means a moist eczema; of the latter, a dry type.

B. When eczema is present and neither fat nor starch appears in excessive amounts in the feces the physician should look for susceptibility to egg albumin or to milk, or, in default of all these more common causes, to a diminished thyroid secretion.

C. Susceptibility to egg or to milk can be demonstrated by the new method of food inoculations—a procedure analogous to the von Pirquet test for tuberculosis and the Schick test for diphtheria.

D. This cutaneous method can be extended to the study of the action of other food elements in eczematous individuals.

E. Normal people, so far as we have ascertained, do not react to these tests.

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1. All of the references mentioned will be found in the three following papers: Knowles, F. C.: The External Origin of Eczema, Particularly the Occupational Eczemas, as Based on a Study of 4,142 Cases, Jour. Cutan. Dis., January, 1913. See also the discussion on this article; Dermatitis Caused by Cosmetics and Wearing Apparel, Particularly Those Containing Paraphenylene Diamin, Pennsylvania Med. Jour., to be published. Heimann: A Critical Review of Eczema and Dermatitis, with an Analysis of a Group of Cases, Jour. Cutan. Dis., April, 1916.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

2. Heimann, W. J.: Jour. Cutan. Dis., 1916, **34**, 259.

3. White, C. J.: Jour. Cutan. Dis., 1916, **34**, 57.

F. In chronic eczema the great majority of its victims seem to exhibit anaphylactic reactions to one or more types of food substances.

G. This phenomenon, as evinced in the few instances investigated, seems to be present in other diseases, which have been associated in the past with food disturbances, notably urticaria and probably acne vulgaris.

H. Approximately 20 per cent. of eczematous individuals do not appear sensitized to any of the common food types. These exceptions may denote that all cases of eczema are not due to food sensitization or that special individual articles of food, not tested by us, may be the causative factors. Such exceptions have been demonstrated by pediatrists where, for instance, one child's asthma is produced by English walnuts.

I. In practically 30 per cent. of these eczematous patients one or more of the controls proved positive. This sign may be considered analogous to the symptom usually observed in urticaria, i. e., dermographism.

J. In the few cases where both stool examination and cutaneous tests were made there was one contradictory finding. Fat was excessive in the stool and negative on the skin, while starch was present in the feces and negative cutaneously. Further combined examinations must be prosecuted in the future to strengthen this whole present theory of the relationship of food poisoning to chronic eczema.

K. One cannot apparently positively tell from the type of eczema present what food elements will give positive skin reactions.

About the same time Schloss read before the American Pediatric Society a paper founded on the results of his three years' labor in this field, from which I quote:

It is unusual to find in one individual idiosyncrasy to one food substance alone.

In nearly all cases of food allergy observed, eczema had existed at some time.

Out of eighteen cases of pronounced eczema sixteen showed cutaneous reactions to the proteins of one or several foods (fourteen to egg, twelve to cow's milk).

That the relationship of the food idiosyncrasy to the eczema may be causative is attested by the therapeutic results, but withdrawal of the toxic food is not always followed by a prompt disappearance of the eczema.

A great number of people, subjects of food allergy, give cutaneous reactions to toxic foods, and, so far as determined, this reaction occurs only in cases of food allergy except in the case of those individuals in whom urticaria factitia is present.

Eosinophilia may be present in cases of food allergy.

In all cases where complete tests have been made the offending food constituents have been the proteins. Guinea-pigs can be passively immunized by the injections of blood or serum from an affected individual.

Patients immunized to egg do not remain immune unless large quantities of eggs are eaten continuously.

A severe attack of food poisoning renders a patient immune to attacks from the same substance for two to three months.

Thus the attacks may be cyclic and repeated tests must be made.

Family histories of similar allergy exist for several generations.

In the discussion of this paper, J. Howland stated that Blackfan had made cutaneous and intracutaneous tests in twenty-three eczematous children and had found them all sensitive to one or more proteins, almost all to egg, most to cow's milk, and two to breast milk. Dr. J. P. Crozer-Griffith remarked that in his belief other food substances than proteins could produce eczema.

Continuing my first year's plan of campaign, two of my house officers, Dr. L. T. Thaxter and Dr. L. M. Van Stone, have made intracutaneous food tests on many of the persons of both sexes and of all ages who have been treated for chronic eczema in the outpatient department or in the skin ward of the Massachusetts General Hospital during my service. The methods of procedure in these cases have been as follows: In a certain number the skin was delicately broken by the rotation of a dental burr, while in others an exceedingly superficial incision was made with a clean, sharp scalpel. The latter method was finally adopted because it produced less artificial disturbance in the controls of the factitiously urticarial subjects. The flexor surface of the arm of the affected individual was cleaned, two parallel rows of four or more incisions were made, and on four of the incisions were placed a drop of cow's fat-free milk, a drop of oatmeal water or of lactose, a small piece of salt-free butter, and a drop of egg albumin. (At times more detailed tests of many substances were made). The other four incisions or abrasions were untouched and left as controls. A positive reaction consists in the reddening and infiltration and, in rarer instances, of the papulation of the skin. If the control incision manifests the same reaction, the test is not considered positive.

In this connection I want to emphasize two facts of omission. I regret these facts, and in future work shall endeavor to correct them. We did not work with the pure proteins of the various foods, and, as a rule, only one test in each individual was made. It will be remembered that Schloss stated that food allergy may be cyclic, and for this reason he made many tests in his cases. This serious omission on my part may account for the many wholly negative examples which will be noted in the following individuals tested — a condition which at one period last winter proved so disappointing that I nearly abandoned further prosecution of this theme.

Strickler and Goldberg,[4] who injected various sterile extracts (egg, cow casein, fish, pork, beef, tomatoes and clams) into the skin of normal patients and patients suffering with several different skin diseases, state that no reaction should be considered positive which does not consist of infiltration to the point of papule or wheal formation which must persist for at least forty-eight hours — any reaction of shorter duration they consider spurious and representing only hypersusceptibility. They conclude that when confronted with a positive reaction they are forced to believe that the foodstuff employed for injection is in some way concerned with the causation of the affection in question.

This is another method, and perhaps from a purely scientific point of view the most exact one to adopt in the future study of this whole question of the etiologic rôle of food poisoning in the production of eczema.

WHOLLY NEGATIVE CASES

CASE 1.—G. C. T., aged 23, stenographer. Face and neck crusting and fissured; arms, hands, thighs and ankles show papules. Food tests negative, October 16 and 26.

CASE 2.—K. M. C., aged 68, laundress. Skin dry, red and covered with fine scales.

CASE 3.—J. L., aged 65, rubber refiner. Duration of disease, two months. Neck, face, forearms and lower legs are red, infiltrated, excoriated and crusted.

CASE 4.—L. W., aged 14, schoolboy. Duration of disease, three years. Thickening, lichenification and excoria-

4. Strickler, Albert, and Goldberg, J. M.: Anaphylactic Food Reactions in Dermatology, THE JOURNAL A. M. A., Jan. 22, 1916, p. 249.

tion of body generally. Food tests negative, Jan. 21, 1915, and again, Nov. 2, 1915.

CASE 5.—G. T., aged 79, clerk. Eruptions of disease off and on for ten years. Skin more or less universally dry and infiltrated and the thighs badly excoriated.

CASE 6.—F. L., aged 66, housewife. Disease present to our knowledge during twenty years. The forehead, cheeks and chin are dull red, dry and scaling.

CASE 7.—M. K., aged 42, housewife. Eczema for twenty years. Elbows red, infiltrated and excoriated.

CASE 8.—W. F., aged 13, schoolboy. Treated by me off and on for eleven years. Present eruption consists of small pinhead papules with punctate excoriations. Chest, axillae, abdomen and groins affected.

CASE 9.—J. M. J., aged 34, housewife. Disease present during eleven years. Present outlook developed five months previously. Right ear and cheek and neck are pink-red and finely scaling. Hands are red and fissured (uses borax soap and powder and occasionally sulphonaphthol).

CASE 10.—J. B., aged 6, schoolboy. Disease six years in duration. Pubes and adjacent thighs are red, papular and thickened; flexures of forearms are red, fissured and oozing.

CASE 11.—B. E. G., aged 7, schoolgirl. Both ears are red and oozing.

CASE 12.—M. J. C., aged 41, housewife. Used borax and soapine much. Sides of fingers are red, fissured and crusted.

CASE 13.—B. P., aged 23, woman stitcher in shoe factory. Backs of hands moist and crusting.

CASE 14.—M. H. S., aged 21, student. Moist, crusting patches on hands.

CASE 15.—M. M., aged 16, schoolgirl. A dry eczema of both hands of two years' duration.

CASE 16.—B. T., aged 42, cigar maker. Disease present off and on for eighteen months. At present, deep-seated papulovesicles (?) on both hands.

CASE 17.—R. S., aged 2 months, a boy with nummular areas of erythema, infiltration and scales over head, trunk and limbs of four months' duration.

CASE 18.—B. S., aged 1 year, a breast-fed and very fat girl who has had the disease practically since birth. The children's department suggests that some internal secretion is upset. The cheeks and chin show fine, pink papules and the groins are red and moist.

CASE 19.—W. S. G., aged 40, motorman. Disease present for four years, more or less of the time. A previously dry and excoriated skin was simply erythematous at the time of the tests.

CASE 20.—H. A. C., aged 42, rubber tire repairer. For one year hands have been rough, red and scaling.

CASE 21.—W. H., aged 15 months. Disease began at age of 6 weeks and has persisted. There has been much oozing and crusting on scalp, face and arms.

CASE 22.—G. E., aged 7 months. Eruption began six months previously, and at the time of the tests there were papules on the buttocks.

CASE 23.—H. J. W., aged 4 months. Patches of infiltration, exudation and crusting on cheeks and extensor surfaces of the arms of several weeks' duration.

CASE 24.—J. G., aged 6 months, breast-fed girl. Duration of disease, three months. The face is erythematous, oozing, crusting and fissuring.

CASE 25.—W. F. C., aged 20, clerk. Fingers have been infiltrated, dry and scaling for seven months.

CASE 26.—B. C., aged 15, schoolgirl. Disease has been intermittently present for ten years. Present attack is three months old and consists of redness and fine vesiculation with some crusting on palmar surfaces of right finger.

CASE 27.—A. S., aged 38, scrubwoman. For eight months. September 1, palms and fingers show occasional vesicles and fissures. October 20, palms thick and dry.

CASE 28.—E. D., aged 38, housewife. Uses naphtha and borax soaps. Duration of disease seven years. Palms red, dry and scaling.

CASE 29.—S. U., aged 50, trained nurse. September 14, redness, excoriation, fissuring and crusting on top of three toes for two weeks. October 5, dull brown, sharply bounded, slightly infiltrated skin.

CASE 30.—M. M., aged 62. Eczema for thirty years. Whole scalp and adjoining face and large part of body are infiltrated, dry, red and scaling.

CASE 31.—E. M., aged 17, clerk. Fingers show patches of redness, oozing, infiltration and vesiculation.

CASE 32.—G. H., aged 1 year. Disease present almost since birth. Now behind and under ear is an erythematous, moist, sharply defined area.

CASE 33.—L. K., aged 54, housewife. Sixteen years' duration. Disease present at first on palms and for last two years on legs and thighs. At present the palms are very dry and scaling and the legs show excoriated papules.

CASE 34.—N. A. H., aged 27, saleswoman. For five months there has been a crack behind an ear. Two weeks ago the process waked up, and now there are moist areas behind both ears as well as dryness and scaling of neck and upper chest.

CASE 35.—S. F., aged 3 months. Duration, one month. Generalized erythema and mild exudation. Baby is breastfed.

CASE 36.—S. R., aged 13 weeks. Breast-fed. For two weeks cheeks and forehead have shown minute papulation and furfuration.

CASE 37.—L. J. P., aged 22, stenographer. Off and on for two years. At present, face and neck infiltrated, dry, scaling and excoriated.

CASE 38.—A. G., aged 27, housewife. Backs of hands are dry, leathery and fissured.

CASE 39.—S. G., aged 50, shoemaker. For one year has had redness, dryness, infiltration and scaling of hands and wrists.

CASE 40.—G. W. M., aged 62, painter and wood finisher for last eight years. Eczema for last five years. Face is red, infiltrated and scaling.

CASE 41.—D. B., aged 4 months. Disease present for three months and at present shows a mildly exudative condition of the face and neck.

CASE 42.—T. G., aged 7 months. Dirty yellow crusts on both cheeks for last two weeks.

CASE 43.—G. M. S., aged 18, schoolgirl. Skin of thumb dry, infiltrated, scaling and fissured for six months.

CASE 44.—M. A. G., aged 48, housewife. Eczema "for years." Left hand and fingers edematous. Skin excoriated and shows many superficial pustules.

CASE 45.—J. J. W., aged 9, schoolboy. Child painted himself red and eruption appeared and has persisted. Whole face and both arms are covered with an almost coalescent, excoriated, papular eruption.

CASE 46.—J. C. F., aged 61, trolley car conductor. Large areas of redness, infiltration and scaling over major portion of trunk and extremities.

CASE 47.—J. R., aged 1 year. Breast-fed. Face and ears have been red, excoriated and exuding for one month. Second attack.

CASE 48.—M. G., aged 11, schoolgirl. Eczema "for years." Skin at present generally red, thickened and fissured. Face erythematous and scaling.

CASE 49.—M. E. B., aged 26, teacher. For last three winters eczema has appeared. Now there are small papules on hands, forearms, face, neck and upper chest. Elsewhere the skin is dry and furfuraceous.

CASE 50.—J. T., aged 20 months. Duration three months. Crusts and fissures on face and scalp.

CASE 51.—P. S., aged 65, wool weaver. For one year scrotum has been itching, red and infiltrated.

CASE 52.—W. S., aged 47, cigarmaker. Hands dry and scaling for previous five months.

CASE 53.—L. R. S., aged 53, housewife. Four years' duration. Crusting lesions on scalp, neck and chest.

CASE 54.—H. S., aged 3 months. Six months' duration. Forehead and cheeks are oozing and crusting.

CASE 55.—H. L. S., aged 35, woolen weaver. Disease present for four months. At present occiput, palms, feet and toes show sharply defined areas of redness, thickening, fissuring and small superficial pustules.

CASE 56.—J. S., aged 28. Housework. Eczema "for years." Palms now show irregular, ill-defined areas of mild thickening with erythema and tendency toward fissuring.

CASE 57.—R. B. T., aged 66, housekeeper. Duration one month. A general erythema over trunk, limbs and face.

CASE 58.—E. B., aged 6 weeks. Breast-fed and vomits after feedings. For two weeks there have been miliary papules over both cheeks and in scalp.

CASE 59.—J. T., aged 62, cutter in shoe shop. Disease evident for four months, and at present face is dusky red, dry, infiltrated and scaling.

CASE 60.—M. F., aged 23. Housewife who uses soapine and sulphonaphthol. Backs of hands and fingers are very harsh, thickly infiltrated, very dry, and covered with long, deep fissures.

CASE 61.—H. W. D., aged 58, bartender. Five months' duration. Back of ears, neck, arms, hands and ankles dull red, infiltrated and scaling.

Summarizing these sixty-one cases of eczema which, on one examination, have given negative reactions to all the food substances inoculated, we find twenty-five examples, or 40 per cent., of the moist, oozing, crusting type, twenty-nine, or 47 per cent., of the red, infiltrated, dry or scaling variety, and seven, or 11 per cent., of the papular kind.

WHOLLY POSITIVE CASES

CASE 62.—M. G., aged 9 weeks. Breast-fed. Cheeks finely papular.

CASE 63.—A. B., aged 26, male stitcher in shoe factory. Duration one year. Process started with vesiculation of soles and skin and is now infiltrated and fissured.

CASE 64.—J. F. K., aged 4. Eruption appeared one week after birth and now appears as fine, bright red papules on scalp, neck, chest and buttocks.

CASE 65.—H. C., aged 40, barber. A few papules and vesicles are present on index finger.

CASE 66.—A. S., aged 26, housewife. Five months' duration. Hands always worse after immersion in water. Pinhead vesicles persist on fingers.

CASE 67.—M. S., aged 24, housewife. For nine months patient has had infiltration and vesicopapules on backs of hands and fingers.

CASE 68.—S. T., aged 43. Pick and shovel. Eight months' duration. Skin of legs shows sharply bounded, red, glazed and dry infiltrations.

CASE 69.—E. M., aged 6 months. For four months cheeks and scalp have shown deep excoriations and bloody crusts. Two months later the scalp was well and the cheeks dry, pink and scaling.

CASE 70.—F. T., aged 6. Disease has persisted six months and at present the skin of eyelids, ears and scalp is infiltrated, crusting and excoriated.

CASE 71.—W. C. C., aged 42, chauffeur. Eczema for seven years. The lower half of one leg is moist, red, and apparently without the horny layer.

CASE 72.—L. S. H., aged 48, baker. Two months previously the lower leg was infected and now the skin is red, infiltrated and papular.

CASE 73.—I. R., aged 3½ months. The first child had eczema also. Patient breast-fed and for two months the cheeks, forehead and anterior part of scalp have shown scattered coalescent papules, some of which are excoriated and oozing.

CASE 74.—T. K., aged 7, schoolboy. Duration three weeks. A prurigo-like eczema.

CASE 75.—F. L., aged 10 months and bottle-fed for last four months. Following an earache of one week without any applications the skin around left ear and of cheek broke out into papules and masses of redness and crusting.

CASE 76.—M. C. S., aged 12, schoolgirl. Skin generally dry and harsh; scalp dry and finely scaling, and pinhead papules generally over the whole body.

CASE 77.—I. S., aged 8 months. Bottle-fed. Two weeks' duration. Skin of back and flanks very red and finely papular.

CASE 78.—H. M., aged 7 months. Breast-fed. Eczema for eight weeks. At first vesicular and now the skin of face is reddened and thickened.

CASE 79.—L. M., aged 30, housewife. Disease present for four years. An attack observed after the use of soapine; and another, three months later, following the use of naphtha soap.

CASE 80.—P. D., aged 26, barber. Eruption present for eleven months.

Grouping these nineteen cases which, on one examination, reacted positively to all the food types inoculated, we find nine, or 50 per cent., of the moist variety, two, or 10 per cent., of the dry sort, and six, or 33 per cent., of the papular kind. (The type of one case is not recorded.)

CONTRADICTORY CASES

CASE 81.—E. G., aged 45, housewife. Uses naphtha soap, washing soda and soapine. Eczema comes and goes. October 21, fingers red and swollen and paronychia is present. Food tests are negative. October 27, food tests positive.

CASE 82.—M. E. M., aged 18, stitcher in overcoat factory. Eight months' duration. October 10, both hands show large areas of reddened, dried and exfoliated skin. Food tests positive. November 10, treatment heals but does not cure. Food tests negative.

CASE 83.—F. G., aged 1 year. Face, scalp, back and lower arms are red, infiltrated, oozing and crusting. October 20, food tests positive. October 22, food tests all negative.

These three cases are naturally too few in number to be of any value statistically, but for the sake of uniformity let us record two, or 66 per cent., moist examples, and one, or 33 per cent., dry and scaling.

CASES POSITIVE TO ONE OR MORE ELEMENTS

CASE 84.—N. H., aged 5 months, breast-fed boy. Disease evident for five weeks. Face and scalp are a mass of excoriations and crusts. Albumin +.

CASE 85.—H. K., aged 5 months. Breast-fed. Intertrigo for three months, general eruption for two days, consisting of flat-topped, small-sized, pink papules on forearms, trunk and legs. Fat +; starch +.

CASE 86.—E. M. G., aged 73, housewife. Both feet show areas of redness, scaling and fissuring. Fat +.

CASE 87.—J. M., aged 26, bricklayer. Palms are moist, oozing, crusting and fissuring. Fat +.

CASE 88.—R. H., aged 16 months. Second attack similar in nature to the first, one year previously. Face, back of hands, and bends of knees are red, moist, oozing and crusting. Milk +; egg albumin +.

CASE 89.—I. M., aged 3. Duration perhaps a year. Both arms are raw. Child much neglected. Starch +.

CASE 90.—M. L. R., aged 8 months, breast-fed boy. Eruption present almost from birth. Buttocks show fine papules and excoriations. Mother says baby always breaks out after eating eggs. Egg albumin +; wheat +.

CASE 91.—B. F., aged 45, housewife. One year's duration. Palms and fingers are infiltrated, exuding and crusting. Starch +.

CASE 92.—J. T. C., aged 60, teamster. Ten months' duration. A similar condition two years previously. There is a small, oozing and crusting area on right palm. Fat +; starch +.

CASE 93.—B. P., aged 17, woman cementer in rubber factory. For six months face, neck and hands have been red, rough, thick and scaly. Fat +; starch +.

CASE 94.—R. K., aged 23, housewife. Duration one year. Fingers and palms are patchily red, vesicular, crusted and fissured. Fat +.

CASE 95.—E. B., aged 33, housewife. Afflicted with eczema for twenty-five years, usually beginning in August and lasting until the advent of cold weather. Inspection shows oozing and fissuring of elbow and abdomen. Fat +.

CASE 96.—T. M., aged 38, carpenter. For twenty years man has had, despite much treatment from many doctors, coarse, flat-topped, red papules on cheeks and nose. Albumin +; fat +.

CASE 97.—P. F. C., aged 49, shipper. A similar attack one year ago. Three weeks previously man swept out a

freight car and felt choked by the dust, and the skin prickled. Now the left face and neck are red, moist, and crusting. Fat +.

CASE 98.—O. C., aged 10, schoolboy. There are infiltrated and excoriated papules on deltoid areas and on abdomen. Albumin +.

CASE 99.—N. L., aged 16 months. Cheeks and ears are erythematous and mildly exudative. Albumin + +.

CASE 100.—D. J. S., aged 3 months, breast-fed boy. Duration two months. Both cheeks show indefinite, pink, dry and scaling areas. Fat +.

CASE 101.—J. M., aged 45. The face, neck and ears are bright red and infiltrated and in places oozing and crusting. Fat +.

CASE 102.—M. L. P., aged 1 year, breast-fed boy. Scalp and face red and moist. Albumin + + +.

CASE 103.—R. M., aged 7 months. Duration six months. A generalized vesicular eczema, most emphasized on face, scalp, neck and upper chest. Albumin + + +.

CASE 104.—M. S., aged 6 months. The skin of face, ears, trunk and arms is brilliant red, oozing and excoriated. Albumin +.

CASE 105.—I. S., aged 3. This girl has spent more or less of her life in the skin ward. Whole body red—at times moist, at others dry and scaling. Albumin +.

CASE 106.—M. C. S., aged 12, schoolgirl. Skin is generally dry and harsh and easily irritated. There are pinhead papules over whole body. Fat +; starch +; milk +.

CASE 107.—T. J. G., aged 21 months. Eighteen months' duration. Right side of face is pink and moist and shows a few papules. Albumin + +.

CASE 108.—S. H., aged 3 months. For two weeks scalp and upper part of cheeks have been erythematous vesicular and crusting. Albumin +.

CASE 109.—H. V., aged 8 months. Duration three months. Subacute exudative condition of face, scalp, neck and upper chest. Albumin + +; starch +.

CASE 110.—R. C., aged 2 months, breast-fed girl. Vulvar region is claret red, edematous and moist. Fat +.

We find, therefore, in this partially positive group, nineteen, or 75 per cent., of moist cases; four, or 15 per cent., of dry, and four, or 15 per cent., of papular. Studying these cases over more in detail, we note in the nineteen moist examples of eczema ten anaphylactic to egg albumin, seven to fat, four to starch, and one to milk. Of four cases of dry eczema, one reacted to egg, four to fat, two to starch, and one to milk. Of four papular cases, two proved sensitive to egg, two to fat, and two to starch. Thus we find that out of thirty-six positive reactions in these twenty-seven sensitized individuals, thirteen, or 36 per cent., were due to fat, and thirteen, or 36 per cent., to albumin — in other words, we must conclude that 72 per cent. of our eczema patients are susceptible to egg albumin and butter fat, while only 22 per cent. react to starch and barely 6 per cent. to milk.

These various percentages differ considerably from those recorded in my first year's communication, but perhaps we have not progressed far enough in this work to make our tables of any permanent value as yet. There is, however, one very striking and to me inexplicable and rather discouraging fact in comparing my work of the previous two years, and that is the great proportion of wholly negative results recorded this year, that is, 55 per cent. against only 20 per cent. last year. I have no reasons to offer for this disappointing discrepancy. I cannot believe that the reason lies in the fact that different men made the tests, for this part of the work of last year was done by two or three men, while the same holds true for the present series. Nevertheless, I have not lost faith in the procedure or in its probable value, which I believe will be proved in time. Let me repeat that the pediatricians state that the test to be of conclusive value must be performed more than once on the same person.

Before leaving this part of my theme, I wish to state that I am not trying to prove that all cases of eczema are due to food idiosyncrasy. My intent is to bring to notice the fact that in certain persons this anaphylactic phenomenon is present and in the course of time to be able to prove that this state is responsible for the susceptibility of these persons to external irritants which remain innocuous to their fellow workers and fellow men.

STOOL EXAMINATIONS

There is perhaps another method of attacking this question. I refer to the macroscopic and microscopic examination of the feces. From this procedure we can learn whether or not the digestive and assimilative powers of eczematous individuals are on a par with the normal standard. These examinations have been made by Dr. Lewis Webb Hill and by my house officers, Dr. Thaxter and Dr. Van Stone.

The methods of fecal examination are too well known to require any explanation on my part. I shall merely state that the usual procedures have been followed in the following cases:

CASES WITH NORMAL STOOLS

CASE 111.—J. A. T., aged 51, vice president. Duration of disease fifteen years. Attacks appear whenever patient is overworked. At present a widely distributed, very red, almost confluent, papular eczema.

CASE 112.—J. M., aged 45. Face, neck and ears are bright red, infiltrated and in places oozing and crusting. Fat +.

CASE 113.—T. J. A., aged 53, bottle washer. Disease present for four months. Face, ears, neck, chest, abdomen, thighs, buttocks and soles of feet are red, infiltrated and scaling.

CASE 114.—D. F., aged 5. Eczema has been present for seven months and is rather generally distributed. Skin is slightly reddened, roughened, infiltrated and fissured and a few papules are evident.

CASE 115.—M. J. D., aged 74, housekeeper. Skin shows areas of redness, roughness, infiltration and excoriations.

CASE 116.—J. C. F., aged 61, street railroad conductor. Duration nine weeks. Large areas of redness, infiltration and scaling are present. Food tests are negative.

CASE 117.—J. R., aged 20 months, breast-fed girl. Child observed in second attack. Face and ears are red, excoriated and exuding. Nits are present. Food tests negative.

CASE 118.—M. L. P., aged 1 year, breast-fed boy. Face and ears show pink-red papules. Albumin + + +.

CASE 119.—M. S., aged 11, schoolgirl. Eczema "for years" and at present the face is red, dry and furfuraceous and the skin of the body is generally red, thick and fissured. Food tests are negative.

CASE 120.—H. M., aged 9 months. Duration of disease eight months. Breast fed. Skin is reddened and thickened and in places moist. Food tests are all positive.

CASE 121.—R. M., aged 7 months. Disease present for six months and consists of generalized vesiculation, especially on scalp, face, neck and upper chest. Albumin + + +.

CASE 122.—J. T., aged 62. Cutter in shoe shop. Duration four months. Face is dusky red, dry and furfuraceous. Food tests are negative.

CASE 123.—M. F., aged 23, housewife. Patient seen in second attack of disease. Backs of hands and fingers are thickly infiltrated, very harsh, very dry and covered with long deep fissures. Food tests are negative.

Among these thirteen persons with normal stools, seven, or 54 per cent., exhibited eczema of the dry type; four, or 30 per cent., of the moist variety, and two, or 15 per cent., of the papular sort.

CASES WITH EXCESSIVE FATS OR SOAPS IN THE STOOLS

CASE 124.—P. F., aged 11 months. Disease present for ten months. Breast-fed for 3½ months. Face and left shoulder show a few persistent areas of red, slightly infiltrated, dry and slightly scaling skin.

CASE 125.—A. C., aged 49, clerk. Four months' duration. Palmar surfaces of fingers are red, dry and scaling.

CASE 126.—A. C., aged 60, physician. Disease has been present intermittently for six years, and for the last three months the patient has observed a dusky edema of eyelids, pink-red maculopapules on forehead, and redness, infiltration and scaling on several fingers.

CASE 127.—H. W. D., aged 58, bartender. Five months' duration. Ears, neck, arms, hands and ankles are dull red, infiltrated and scaling. Food tests are negative. The stool shows microscopically a rare globule of free fat, a small amount of soap and an occasional starch particle.

CASE 128.—M. S., aged 6 months. Face, ears, neck, chest, trunk and arms are brilliant red, oozing and excoriated. Albumin +. The microscope shows a slight amount of fat and a considerable degree of soap.

CASE 129.—I. S., aged 3. A frequent visitor to our skin ward. The whole body, including the face and scalp, is red and infiltrated, in places dry and in places moist. Albumin +. Macroscopically a typical soap stool; microscopically there is a considerable amount of neutral fat and an excess of soaps.

CASE 130.—M. C. S., aged 12, schoolgirl. The skin is generally dry and harsh and easily irritated. The scalp is dry and finely scaling. There are pinhead papules generally over the whole body. Fat +; starch +; milk +. Microscopically the stool shows a moderate excess of soaps.

CASE 131.—M. E. B., aged 26, teacher. Disease present for last three winters, absent in summer. Face, neck, upper chest, arms and hands show small papules some of which are excoriated and oozing while others appear dry and furfuraceous.

CASE 132.—F. Q., aged 20, brick maker. Disease for sixteen months. Face, scalp, trunk and extremities show areas of infiltration, papules, excoriations and crusts. Some cellulose and a small amount of soap are present in the stools.

CASE 133.—J. T., aged 20 months. Disease of three months' duration. Greasy crusts on scalp, and crusts and fissures on face. Food tests are negative. Microscope shows a moderate excess of soaps, but no free fat.

CASE 134.—P. S., aged 65, woolen weaver. Man has had an itching, red and infiltrated scrotum for one year. Food tests are negative. Stools are not formed and gas fermentation is present. Microscope shows a moderate amount of soaps.

CASE 135.—W. S., aged 47, cigar maker. Man has had previous attacks of eczema which disappear when occupation is given up. Present eruption apparent for five months. The hands are dry and scaling. Food tests are negative. The microscope reveals a very small amount of neutral fat.

CASE 136.—E. G., aged 7 months. Breast-fed. Duration two months. Over the whole face are thick, dirty, heaped-up crusts and excoriations. There are also a few papules on both arms. November 30, and December 8 and 13, a moderate amount of soaps were found microscopically.

CASE 137.—A. T. B., aged 43, housewife. A varicose eczema which has appeared also in 1908 and 1911. A small amount of free fat occurs microscopically.

CASE 138.—L. R. K., aged 53, housewife. A recurrent eczema. At present there is crusting on scalp, neck and chest. Food tests are negative. The stool is foul, brothy, semisolid with neutral reaction. Considerable excess of soaps and moderate excess of starch are present.

CASE 139.—T. J. G., aged 21 months. Disease evident for eighteen months. Right side of face is pink and moist and shows a few papules. Albumin +. Stool is strongly acid, loose, foul, brothy, and shows gas bubbles. A few neutral fat droplets are present as well as an excess of soap. A fermentation type of stool with moderate fat and sugar indigestion.

CASE 140.—S. H., aged 3 months. Duration two weeks. Scalp and upper cheeks are erythematous, vesicular and crusting. Albumin +. Stool is soft, yellow, very acid and contains many soft small curds, considerable mucus and considerable fatty acids and soaps.

CASE 141.—H. S., aged 3 months. Duration of disease the same. Forehead and cheeks are oozing and crusting. Food tests negative. Stools are rather watery, brownish-yellow, slightly acid and contain a small amount of fat.

CASE 142.—I. S., aged 8 months. Bottle-fed. Disease two weeks old. Skin of back and sides very red and shows pinhead papules. Food tests are all positive. Five examinations of the stools revealed many soap suds, some soft curds, some mucus. The sixth test when the eczema was practically gone revealed a normal stool.

CASE 143.—H. L. S., aged 35, woolen weaver. Duration four months. Occiput, palms, feet and toes show sharply defined areas of redness, thickening, fissures and small pustules. Food tests are negative. Stool contains a moderate excess of soap.

CASE 144.—J. S., aged 28. Housework. Disease present for years. Palms show irregular, ill defined areas of mild infiltration with redness and tendency toward fissuring. Food tests are negative. Stool is musty and contains a large excess of neutral fat and of soap and of fatty acids.

CASE 145.—R. B. T., aged 66, housekeeper. Duration, one month. General erythematous condition of face, trunk and limbs. Food tests are negative. Stool is black, foul, frothy, almost fluid, and contains a moderate excess of soaps.

CASE 146.—E. B., aged 6 weeks. Breast-fed girl. Two weeks' duration. There are minute miliary papules over both cheeks and on scalp. Diaper region is generally reddened. Food tests are negative. Stool is spongy and yellow; contains curds and a moderate increase of neutral fats and soaps.

CASE 147.—J. E. H., aged 80, manufacturer. A mild but very chronic and persistent erythematous and infiltrated eczema of the feet. Stool is foul, alkaline and pasty and contains a slight excess of soap.

CASE 148.—A. W. S., aged 31, physician. An infiltrated, rather cornified condition of the palms of three years' duration. Stool shows a very large excess of neutral fat and an enormous excess of soaps and fatty acids. The microscopic field seems to be composed of fat.

CASE 149.—C. F., aged 6 months. A girl breast fed for six weeks only. Eczema present for three months. The cheeks are fiery red and moist. The hands, forearms, lower legs and feet show intracutaneous papules. The stool shows a very rare neutral fat droplet and a moderate excess of soaps and fatty acids.

CASE 150.—R. F. G., aged 6 months, a breast-fed girl. Duration 3½ months. Cheeks show small areas of redness, moisture and excoriation. Stool is very acid in reaction and shows a moderate excess of neutral fat and a very large excess of soap and fatty acids.

CASE 151.—H. K. P., aged 59. An eczema of many years' standing. Palms and soles thickened and cornified in definite areas. Stool is liquid, foul, brothy, strongly acid and contains a large amount of cellulose and a slight excess of neutral fat.

CASE 152.—E. L. Y., aged 2 years. Duration, approximately eighteen months. At first marked egg anaphylaxis was present but eventually outgrown. For last few months disease has been present in scalp, which at present is buried under a mass of white, granular scales. Stool shows a large excess of soap.

Of these twenty-nine patients exhibiting an excess of fat or soaps in the feces, fifteen, or 51 per cent., showed a dry type of eczema; nine, or 31 per cent., a moist, and eight, or 18 per cent., a papular.

CASES WITH AN EXCESS OF STARCH IN THE STOOLS

CASE 153.—F. G., aged 1 year. Scalp, face, lower arms and back are red, infiltrated, oozing and crusting. Food tests are all positive, October 20, and all negative two days later. Stool shows a large excess of undigested starch.

CASE 154.—H. V., aged 8½ months, a breast-fed boy. Duration three months. Scalp, face, neck and upper chest are mildly exudative. Albumin ++; starch +. Stool is green, loose, strongly acid and contains a moderate excess of starch—"a typical stool of carbohydrate indigestion."

CASE 155.—R. C., aged 2 months, a breast-fed girl. Disease present since birth. Vulva is red, moist and edematous. Food test is positive to fat. The stool shows a typical fermentative diarrhea due to excessive carbohydrate fermentation.

CASE 156.—L. R. K., aged 53, housewife. Disease four years old and shows crusting on scalp, neck and chest. Food tests are negative. Stool is foul and brothy and contains a considerable excess of soaps and a moderate excess of starch.

In the four individuals whose stools contain an excess of starch, all displayed the moist variety of eczema.

Summarizing eczematous individuals from this point of view, we find that 28 per cent. passed normal feces, 63 per cent. stools containing an excess of fat, and 8 per cent. stools exhibiting a surplus of starch. These are significant figures.

Analyzing the last group of patients, do we find, when both skin tests and fecal examinations have been made in the same individual, that these two methods of study always reveal similar results? I regret to say that we do not. In the patients with normal stools one showed a positive cutaneous test to all the types of food inoculated, and one a test positive to fat. In the fatty stool group, ten patients showed cutaneous tests negative to all types of food inoculated, and two positive to starch. In the starchy-stool group, one individual exhibited tests wholly negative. These discrepancies are regrettable rather than vitiating to the object of our study — mere inability to digest and assimilate all types of food ingested does not necessarily mean that the individual has become sensitized to these foods; and yet the same inability may possibly play a rôle in the cause of the individual's eczema.

CONCLUSION

From the detailed results it is evident that a goodly proportion of persons affected with chronic eczema show sensitization to the various types of food and that a much larger percentage are unable wholly to digest all the elements of the foods they eat.

I cannot present exact figures showing the comparative percentage of improvement or of cures resulting from the correction of errors of diet in these eczematous patients as revealed by these two methods of examination — I can merely assert that chronic eczema should no longer be the bugbear that it was; in fact, with the aid of these two methods, one should expect to cure and cure reasonably quickly the great majority of these patients who present themselves for treatment. I believe that this assertion could not have been made with equal truth two years ago.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HEIMANN, KNOWLES AND WHITE

DR. ERNEST LEWIS MCEWEN, Chicago: The sources from which the medical student gains his knowledge are, first the teacher, and, second, the textbook. I have always found the teaching of the subjects of dermatitis and eczema extremely difficult, largely because the textbooks handle them in an unsatisfactory way. They make the chief distinction one of etiology; eczema is caused from within, and dermatitis from without. As a matter of fact, these cutaneous disorders both have external and internal factors of origin, and in the absence of clinical differences the student is wholly at sea as to what constitutes eczema and what dermatitis. I have been on the lookout for some one to write a textbook on dermatology who will have the courage to abandon the old methods of discussing these subjects and to strike out along new lines. One or the other of these two terms will have to be abandoned in the interest of clearness; and despite the fact that the term eczema has been used so long and so extensively I do not feel that we must necessarily retain it. I believe Dr. Heimann's conception of these two disorders is very close to what will eventually be accepted. If eczema and dermatitis are identical then we must correct the nomenclature; one or the other term must be eliminated. If such a change were made for the sole purpose of helping the student to a better understanding of a difficult subject it would be amply justified. In searching for the causes of these cutaneous disturbances we have a wide field to cover and much earnest work must be done. Dr. White is following a promising lead and I believe we may expect valuable findings from his work. The internal factor is the great unknown quantity which all must seek in these diseases, if we are to put them on a truly scientific basis.

DR. JAY F. SCHAMBERG, Philadelphia: I agree in the main with the propositions expressed by Dr. Heimann. We are all instinctively worshippers of tradition, particularly medical tradition, and we reluctantly give up such a term as eczema. We have, however, during the course of many decades, gradually lopped off from this a comprehensive group of diseases like scabies, eczematoid, ringworm, etc., and this pruning will continue. The most scientific classification of skin diseases is that which is based on etiology. If it is definitely determined that a certain type of eczema is due to the poisoning from ivy or primula, that another is due to food, it is clear that they are separate and distinct conditions, although we may not be able to differentiate them always clinically. The etiologic factor, it seems to me, is the dominant one, for through its recognition the cure is effected. For the past year or two, through the activities of Dr. Strickler, one of my associates, we have been trying to study the question of food sensitization and its relation to eczemas. We must be prepared to realize that with some food substances, such as cow caseins and egg white, we are dealing with very pure proteins, and one must be warned against regarding all reactions with such rich protein substances as necessarily indicating a relationship to the eczema under consideration. We not infrequently see reactions from milk, and yet on the exclusion of milk no favorable result. On the other hand, remarkable results are sometimes achieved. To produce an adequate protein extract of meat it is necessary to use an alkali, and it is important to determine that the alkali does not induce of itself a reaction in the skin. These protein extracts must later be subjected to analysis for the determination of nitrogen to make sure of the amount of protein they contain. We must be certain of our methods and technic before we can expect to arrive at results which will be really indicative of the true state of affairs. Many persons are susceptible to certain external irritants by reason of an inherent susceptibility which others do not possess. One man may be highly susceptible to poison ivy, for example, while his neighbors may be insusceptible to it. I recently saw a girl of 14 who for three or four years has suffered from several severe attacks of ivy poisoning each year; perhaps three months of each year were spent in recovering from these attacks. I determined to try to immunize her and ordered a 1 per cent. tincture of rhus toxicodendron in 100 c.c. of menstruum, of which she was to take 3 drops after each meal, gradually increasing the dose. At the end of one month she was taking 60 drops after each meal. Since then she has not only been able to pass poison ivy at close range, but also to touch it without bad effect. The result was so striking that I expect to follow this method in other cases and I hope that some of those present will give it a trial.

DR. HENRY TRUMAN BYFORD, Chicago: Formerly I suffered from patches of eczema on the lower limbs, sometimes lasting for weeks, sometimes only a few days. I began experimenting with my food and found that I would usually improve rapidly by cutting out the starches, and subsequently I found that by eliminating the fats the eruptions would always disappear very promptly. After trying various diets, I concluded that milk and eggs were the causes, but that they did not act except when the stools contained fat or gave evidence of carbohy-

drate fermentation. Hence, in my case the cure consists in keeping the alimentary canal in a normal condition and in eating the offending proteins in quantities that the system needs and is prepared to metabolize. Acting on this belief I have no more trouble except about once a year or so when I grow careless and get caught with a beginning eruption. In these rare attacks the itching subsides as soon as I begin to act on this belief, and the unoffending rash rapidly fades away. Hence, I consider the cause of my former attacks of eczema to have been deranged digestion that interfered with the complete digestion of certain proteins and thus resulted in anaphylaxis.

DR. RICHARD L. SUTTON, Kansas City, Mo.: Dr. Heimann and Dr. McEwen suggest that we discard the term eczema, and consider all lesions now grouped under that heading as instances of dermatitis. I wish to arise to a point of order. After all of the various interlopers, such as scabies, infectious eczematoid dermatitis, ringworm of the palm, and a host of other diseases have been thrown out, I believe there still remains a small group of cases, reflex if you like, but entitled to be considered as idiopathic nevertheless, which belongs in this category. Dyer's preputial type, and Whitefeld's flexural variety may be taken as more or less typical examples. Following Dr. White's suggestions regarding the rôle excessive fats and starches and anaphylaxis play in the causation of infantile eczema, my therapeutic results in this disorder have been much better during the past two years than they were prior to that time. It would be extremely unwise to consider all cases of eczema as examples of dermatitis, pure and simple. Clinical observation, research, and frequent discussions will go far toward clearing up the obscure points in question.

DR. E. D. SAGER, Cleveland: I think that in many instances these eczematous eruptions are the result of faulty metabolism, and my routine treatment in many cases consists of salicylate of mercury, in combination with taraxacum and an alkali in order to overcome the acidosis that is almost invariably present. Tests of the blood and stomach contents should first be made. Externally, I have had very good results with the Finsen light.

DR. MICHAEL LEO RAVITCH, Louisville, Ky.: In regard to the classification of eczema, I agree with Dr. Schamberg, and I do not think the term should be discarded. Rather, I would divide the eczemas into two classes, i. e., those due to internal causes I would call true eczema, and those due to external causes, such as occupation, mechanical or chemical irritants I would call dermatitis. I believe that faulty internal secretions have much to do with the production of true eczema. The sensitization of food tests carried on under Dr. White ought to be commended. While nothing definite has yet been established, we may yet learn a great deal from such experiments.

DR. ANDREW P. BIDDLE, Detroit: I would call attention to the treatment of chronic eczema from another point of view. I agree with Dr. White that the food element has much to do with its causation, but I have studied the subject from a different angle. I have associated with me men who are specialists in other lines, internal medicine, gynecology, roentgenology, etc., and in as many cases of chronic eczema as possible have submitted the patient to a thorough general examination. Our investigations have shown almost invariably some degree of ptosis or stasis of the bowel, and frequently, in women, a displacement of the uterus. In short, we have usually found some evidence of stasis in the ileum or colon, and, when we have succeeded in correcting this condition, we have aided materially the cure of eczema. I am firmly convinced that the only way that we shall be able to cure chronic eczema is to find the underlying predisposing cause and have the condition corrected.

DR. ERNEST DWIGHT CHIPMAN, San Francisco: I was much impressed with the parallelism of the papers of Drs. Heimann and Knowles. They both lead back inevitably to the doctrine of cutaneous reactions which indicates that the same cause may provoke different reactions in different individuals and that the same eruption may be provoked by most diverse causes in predisposed subjects. One of the older French writers aptly remarked: "There is no eczema, only eczematous." Dr. White's paper was of particular interest to me because it emphasized one of the points which I tried to bring out in my paper on dietetics, namely, that while not every skin disease demands dietetic treatment those which do require such care do so for some definite reason and every contribution to our knowledge of fundamental dietetic indications relieves us by so much of the tendency toward haphazard feeding.

DR. JOHN G. BURKE, Pittsburgh: I should like to mention two instances where one of twin babies had a vesicular eczema, the mate in both cases being entirely free from an eruption. The first set were nursed at the breast and the second set were both receiving the same modified milk mixture. As both these children received the same care and attention and the same food as its mate, if eczema is due to an external irritant or to an inherited weakness of the skin, or to the skin being sensitized by the food, why did one child have the eczema and the other twin escape it?

DR. JAMES MOORE KING, Nashville, Tenn.: Several years ago I was very much impressed with the effect of milk on a child. The patient was a boy with recurrent attacks of eczema; the milk would be withdrawn from his diet and he would get almost well; then he would resume his milk and have a prompt recurrence of his eruption. Diet unquestionably plays a great part in eczema. Whether the cause is due to the waste products of the food or to a separation or dissociation of the food molecule we do not know, but it will probably be found to be a split protein which produces anaphylaxis or sensitization. Urticaria is the result of various causes, and I see no more reason for giving up the term eczema than that of urticaria. Many years ago Dr. Isadore Dyer called attention to a form of eczema associated with adhesions about the prepuce in male infants: in these cases I have found that circumcision gives almost immediate relief.

DR. LLOYD WARREN KETRON, Baltimore: I should like to ask Dr. White if he has used the intradermal method of testing the sensitiveness of the skin to these proteins? I did this with milk in about twelve or fifteen cases of skin diseases as well as normal cases and found that they all reacted.

DR. ISADORE DYER, New Orleans: I have views on this subject somewhat divergent from what has been said. Eczema has always appeared to me to be in most cases a condition rather than a distinct entity, and that if we take that view of it we could handle it better. One difficulty is that the term eczema, almost ever since its origin, has been used as an omnibus both by the profession and the laity, and we have come to regard it as a generic term. To my mind the word implies a catarrhal condition. Our conception of a catarrhal condition in other organs than the skin is very clear, and my conception of eczema is that of a catarrhal condition in the skin itself. That there are conditions of the skin which properly fall under the term of eczema has been generally appreciated. I refer especially to the types of eczema which are called reflex, such as the type we see in infants which appears shortly after birth and lasts weeks or months, where the eruption will disappear and recur, presenting all the evidences of a catarrhal condition. To me, no other term than eczema can be employed to define the condition, and we can find no excuse for calling it a dermatitis. Its causes are varied, but nearly always the cause is reflex. The adhesions of the foreskin causing reflex eczema have already been referred to by Dr. King, and that condition as a cause of eczema in male infants has been repeatedly verified by me during the past twenty-five years since it was first suggested by me as the chief cause of reflex eczema in male infants.

DR. SAMUEL E. SWEITZER, Minneapolis: In the teaching of this subject it has been my custom to classify all cases of known origin as dermatitis and all cases of unknown origin as eczema. I sometimes have been inclined to believe that the cases I recognize as eczema differ somewhat from those I regard as dermatitis.

I was very much interested in Dr. White's paper regarding diet in infantile eczema. In our clinic, we refer every child with eczema to the pediatrist for dietary regulation, and we do not get any results in those cases until the diet has been regulated. In Minneapolis I have been struck with the increased number of cases of eczema which are due to a mild ichthyosis. These eruptions appear in the winter and disappear in the summer, and I have found that these cases have

responded very well to local treatment and also to the administration of thyroid. We have also been on the lookout for alveolar abscesses in connection with chronic eczema and have endeavored to trace a connection between the two conditions.

DR. H. H. HAZEN, Washington, D. C.: I do not know whether we are justified in omitting all mention of external parasites, especially bacteria, as exciting factors in some of these cases. Drs. Ormsby and Mitchell demonstrated the existence of such cases. In children with discharging ears we often see a true vesicular eczema where the pus has run over the skin. In children who sleep together we often see a true eczema extend from one to the other, showing evidence of a definite contagion. There is another common type that begins with a small vesicle; if you will remove the top from one of those tiny vesicles and thoroughly cauterize the lesion, you will prevent the development of other vesicles. I have taken the contents of such a vesicle and inoculated myself with them and have been successful in causing an eczema. This has led me to the belief that in some of these cases there is a bacterial infection, while in others there must be a predisposing cause. In regard to the observation made by Dr. Biddle I would say that during the past two years we have roentgenographed several hundreds of patients, and in almost every instance we have found some degree of abdominal ptosis, so that I have come to the conclusion that we must not attach too much importance to this factor. In regard to the intradermal injection referred to by Dr. White, it would be interesting to try the final food products and see what they would do, as Dr. Ketron has suggested to me.

DR. H. C. BAUM, Syracuse, N. Y.: This question of nomenclature has brought out very divergent views. I myself do not see that it matters very much provided we keep the fundamental nature of the trouble in our mind. For years we have taught that all so-called eczemas were examples of dermatitis, and the latter we divided into two groups, one of known cause, the other unknown. Dr. Heimann has crystallized these thoughts in his paper and fortified them with pathologic evidence. Dr. White and his associates have opened up a new field, and I think we are all hopeful that its further development will aid greatly in the care of these patients. There is one aspect of the subject to which I would like to refer, namely, that of diet. Some patients cannot tolerate starches unless something is given to aid in the digestion of the starches and the same is true of certain protein substances. After all, Nature is the best physician and if we go back to Nature and put our patient in a high state of physiologic health, he will do better than if we eliminate this and that article of diet and neglect his general condition.

DR. FRANKLIN W. CREGOR, Indianapolis: Possibly the physiologist might help us in clearing up these so-called anaphylactic reactions. Years ago Crocker called attention to our inability to explain the blush areas anatomically, while the more recent theory is that anaphylaxis may be attributed to the blood platelets producing a partial thrombosis and thereby exciting a trophoneurosis. It is a fruitful source of investigation, and we must depend on the physiologist for some aid in its solution.

DR. ROBERT A. C. WOLLENBERG, Detroit: We must consider not only quality, but also quantity, i. e., caloric values. We know that most Americans eat too much meat, and considering the excess food in the light of a waste product, we can readily see that as such it may give rise to some of the phenomena which we describe at the present time as eczema. Working along these lines, I have been cutting down the fats and starches, having in mind both quantity and quality. Most of the children we see have been fed too much starch, and by carefully regulating their diet we have been able to get some very satisfactory results.

DR. WALTER J. HEIMANN, New York: In spite of the apparently divergent views expressed by the various speakers, I think we are not so very far apart. Dr. Sutton did not think it right to abandon the term eczema because it represented a group of cases the causes of which are unknown. I agree with the latter portion of his remarks. As a matter of fact, it does not make much difference whether we call it eczema or dermatitis of unknown origin, but for the sake of common sense, when we definitely know that a certain condition is a pathologic entity and when we know its etiology, let us call it a dermatitis of such or such an origin, or, if we do not know its origin, let us admit it frankly in our terminology, favoring dermatitis of undetermined causation to eczema.

In regard to the statement made by Dr. Biddle, I am inclined to agree with Dr. Hazen's view. I cannot conceive of a gastric ptosis causing eczema, although if there is intoxication associated with the intra-abdominal condition it may act as a predisposing cause. Dr. Burke spoke of twins receiving the same diet and living under similar conditions, one suffering from an acute vesicular eczema and the other entirely free from the disorder. Of course, such instances are difficult to explain; it comes down to the individual reaction of the child to a general cause, or to some local precipitating cause.

In connection with Dr. Dyer's remarks, I think he agrees with my conception of eczema, for I said that I regarded it as a condition rather than a disease. As an inevitable corollary it follows that it becomes the duty of the physician to try to determine the underlying cause of the condition. It would be as appropriate to call colitis of unknown origin an eczema of the colon, as it is to call a dermatitis of unknown origin eczema.

DR. CHARLES J. WHITE, Boston: I am perfectly in accord with what Dr. Heimann said in regard to the etiology of these disorders: the only point is the question of terminology. We have so many causes of eczema that it renders this question a very difficult one, and before coming to any definite conclusion as to the nomenclature of these disorders I would like to emphasize the statement that it should be settled by an international board of dermatologists; not by a purely American board. Dr. Schamberg mentioned an interesting observation in the treatment of a case of poison ivy, and I think we should follow up that line of treatment. It is in accord with the approved method of treating hay-fever and other affections, the object being to render the patients immune. I would like to add one other possible factor in the production of dermatitis venenata, namely, the spruce tree. My father spoke of it in his book merely as a possibility in connection with the use of spruce gum, but yesterday I saw a case of undoubted spruce tree poisoning. In regard to diet in psoriasis, while most physicians have been restricting the protein intake, my associates have gone on with the idea that by excluding the starches in psoriasis, the patients would improve, and their results thus far have been very encouraging. These patients have been put on the Allen dietary. Dr. Ketron spoke of the intradural method of testing proteins. I have had very little experience with it, but the more one wounds the skin in these cases, the more likely one is to produce these reactions. Dr. Sweitzer spoke of leaving the diet in eczema to the pediatrist. I am not in favor of that. Only a few days ago I heard a pediatrist say that all cases of eczema in infants should be treated by the pediatrists. As to the thyroid treatment of eczema, it might be beneficial because we know that the administration of thyroid extract increases the perspiration. When Dr. Hazen referred to eczema in children with discharging ears, I wondered whether he was not getting into the impetigo class; this is a larger group than we appreciate.

DR. FRANK CROZER KNOWLES, Philadelphia: I have been extremely interested in this discussion and I think it is a great pity that some decision cannot be reached on the subject of eczema. We had a discussion on the subject before this section in 1908 and before the American Dermatological Association four years ago, but it is still, apparently, as far from being settled as ever.

Superstition and Medicine.—Born in ignorance, nourished on superstition, clothed with mysterious rites and ceremonies, medicine has had a hard task to free itself from hereditary and environmental influences. Attempts to break away from these adverse and retarding conditions has marked the highest efforts of the race. During nearly every century since recorded history began, there have been some superior men, intelligent and far-seeing above the masses, who have contributed something to science. Such were Hippocrates, Galen, Pare, Servetus, Harvey and others whom we now delight to honor as contributors to knowledge and benefactors to the race.—V. C. Vaughan, M.D., *Science*, Dec. 8, 1916.

SUMMARY OF THE PENNSYLVANIA STATE WORK IN POLIOMYELITIS

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The geographic range of poliomyelitis, as I know it, includes England, beginning in 1838, Norway, Sweden, Denmark, Germany, and on this side of the Atlantic ranging from Cuba to northern Alaska. In the last twenty-two years, several epidemics have appeared in different sections of the United States.

The first to occur in Pennsylvania was in 1907, when 131 cases were reported by the grace of the physicians, the disease not being as yet reportable. Seven counties (Elk, Forest, Jefferson, Clarion, Venango, Warren and Lawrence) shared in this outbreak. The next year there was a similar outbreak, but altogether limited to Adams County, which had been untouched the year before. Here, as later, the mapping of the cases shows that the disease is not more likely to reappear in a center previously infected than it is to appear in some new center.

In 1909 our commonwealth suffered but slightly from poliomyelitis. The progress of the disease elsewhere led me to call the Advisory Board of the State Department of Health together. The result of our conference was the promulgation of a regulation placing poliomyelitis among the diseases reportable in Pennsylvania; thus our first comprehensive morbidity and mortality statistics began in 1910.

Up to July of that year, few cases were reported, but then came a rapid increase. In the month of August we had 275 cases, while September showed 378 cases. In October the fall began, the month bringing only 197 cases. In November there was a further fall to 95 cases, and during December it went down to 15 cases. This visitation totaled 1,112 cases in six months.

During the year 1910 there had occurred 269 deaths from this disease. From this eventful year for Pennsylvania, we looked forward to the next year with anxiety, yet 1911 passed away leaving a record of only 177 cases. Then came 1912 with 267 cases, while in 1913 there was a drop to 141 cases, and in 1914 to 113; but again in 1915 a rise to 162 cases.

The cases in these years were very much scattered throughout our territory of 45,000 square miles: the scattering, however, was not uniform. Whole counties were free, and we really have been unable to collect data to account for this distribution. In some of the cases, in remote, isolated homes in the mountains, there was not much else to hold responsible except the United States mails, if there was an independent micro-organism or a host in which the organism was spending part of the cycle of its life, or possibly a mere carrier to be transported from place to place.

The only real nestling notable in 1914 was in the southwestern section of Washington County, where we had thirty-two cases. The concentration of 1915 was in the northwest corner of the state, in and adjacent to the city of Erie, where there were about a hundred cases.

The year 1916 opened well, and as late as July 1 only twenty-two cases appeared in our statistics. This condition existed notwithstanding that Greater New York had an unprecedented number of cases during the latter part of June. So severe was this outbreak that, after a visit to New York, I had a full realization of the hysterical condition of the public over the sudden visitation of the disease with its high mortality.

Dr. John J. Mullowney, assistant chief medical inspector, was at once detailed to Brooklyn to live, and to observe and report everything connected with the epidemic, from the environment to the subjects, both alive and dead. A letter to Commissioner Emerson of New York brought Dr. Mullowney every facility to study the situation in a comprehensive way. His reports soon made plain that a considerable number were driven into the hospitals by the regulation calling for a quarantine of eight weeks.

In certain sections, however, in districts in which the disease prevailed, there was a tendency to stampede from what was called the "plague," and Pennsylvania was already being infected by those in the acute stage of poliomyelitis, as well as those who were infected and went down on their arrival in our commonwealth in one, two, three, four, five or six days.

While I do not intend going into the details of the work done in Brooklyn, I wish to mention the fact that we collected flies of different species from the infected rooms. These we ground up and soaked in a neutral salt solution, using the filtrate to inoculate monkeys, altogether with negative results.

With the facts already mentioned before me, and letters, telegrams and telephone calls from our people, asking and even demanding that some radical measure be taken to prevent the plague, raging in New York and New Jersey, from spreading into our state, and in my ignorance regarding the etiology of the disease and its methods of transmission, together with the information that along the railroads leading from the infected centers of New York and New Jersey the disease was rapidly increasing and showed a marked difference at these points over other places in the state, I immediately called the Advisory Board of the State Department of Health to consider the advisability of quarantining Pennsylvania against other states. The result was the unanimous carrying of a resolution to quarantine. This meant the guarding of a thousand miles of boundary line.

The department, which had been confronted by other emergencies, had no trouble in selecting the geographic points necessary to guard against various methods of travel from our sister states.

Men were equipped, instructed, and on duty within about forty-eight hours after the call for mobilization. The absolute quarantining of the sick was fixed for thirty days. These radical measures were, as I have said, demanded by the public, and our want of knowledge forbade our resisting the wish of those whom we represented, and whose health and lives had been entrusted to our care. The county medical inspectors, the health and special officers, numbering all together about a thousand men, were instructed to caution every one against the introduction of the disease among us and to report by wire to the central office of the department of health in Harrisburg every case discovered.

Officers were instructed to arrest on sight and quarantine suspects against coming in from other states. Circulars were distributed giving careful instructions how to nurse the sick. Medical men were requested to visit the patients in the townships, villages and smaller boroughs. Nurses had their instructions to visit the poor patients and have the homes cleansed and screened against insect life. All foodstuffs for children were ordered cooked, and the acutely sick were gently cared for until the active poison had played its

part, and then nurses sought hospital beds for the crippled children that they might receive the proper treatment to restore mobility.

All railroad coaches coming from infected districts were disinfected; all second-hand furniture coming from other states had to have a clean bill of health, as did all incoming children under the age of 16 years. These measures kept thousands of sick and infected children out of our commonwealth, and I shall leave it to those present to determine what relation that had to our fortunate escape from a repetition of what happened in New York and New Jersey.

You must remember that when this was done, and today, the medical men in charge of the epidemic in New York thoroughly believed that they had abundant proof of transmission of the disease by contact and by third persons. With this belief so thoroughly grounded in those who were dealing with so many thousands of cases, there necessarily came up the question of the advisability of moving the educational machinery of this commonwealth on a short period to get it out of the danger zone, by taking in a portion of the safer season of the coming spring time. The result was that the advisory board voted to postpone the opening of all schools until Sept. 29, 1916. This moved the entire piece of educational machinery on in one solid block without interfering with its organization by breaking cogs out of the wheels here and there through the limiting of the postponement to those under 16. The people, however, lost sight of the organization of the schools and demanded that they be put on the same ground with moving picture shows and other places of amusement, where only children under 16 years of age were forbidden to congregate. The first order, therefore, was rescinded and the general rule passed forbidding all children under 16 years of age to attend school until September 29. This left the organization of the school system entirely to the educators, and they wisely ruled to keep the schools closed to those of all ages, and in many cases later than September 29.

The curve of the insect life runs closely parallel to the curve of poliomyelitis. The disease is essentially a disease of warm weather. The few exceptions are to be found very far north where the custom of living in huts in great filth and heat, and amid insect life is common. The environment in the very northern and cold climates must be thoroughly understood by us before we conclude that it contradicts our belief that we are dealing with a disease of warm weather.

When we turn to our statistics, the analysis of the mortality of poliomyelitis by sex and age adds little or nothing to our previous knowledge concerning the occurrence of the disease or the fatality. Nearly a fifth (19.8 per cent.) of all deaths occur under 1 year of age; a little more numerous (20.6 per cent.) are the deaths between 1 and 2 years. For each of the periods from 2 to 3 years and from 3 to 4 years the proportion of deaths is close to 13 per cent., and for the next year of life drops to somewhat over 8 per cent. Taken together, the deaths under 5 years make up almost three quarters of all. For the next quinquennial period, between 5 and 9 years, the percentage falls to nearly 15 (more exactly 14.7). For the next it is a little over 5 (5.3), and the same percentage remains for all patients over 15. An influence of nativity on the morbidity or mortality is nowhere evident.

An exhaustive report, including all phases of the epidemic in Pennsylvania, will appear in our annual report to the governor.

FURTHER OBSERVATIONS ON THE CONNELLAN-KING DIPLOCOCCUS THROAT INFECTIONS

THEIR SEQUELAE, WITH ESPECIAL REFERENCE TO ARTHRITIS *

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The Connellan-King diplococcus is a small gram-negative organism. It was first observed in my cases in the latter part of 1914, Connellan having found it a little earlier around the roots of teeth extracted by Hasbrouck and Palmer. We have never found it outside of the mouth. There, we have found it either in a tonsillar crypt or in some sinus in the tonsillar fossae after the tonsils have been removed. Such cavities are partially anaerobic chambers. Cultures have been made from the ear, the nasal chambers, and the nasal accessory sinuses, but so far they have all been negative for this micro-organism. It grows slowly on most of the solid culture mediums, preferably on veal serum agar in the presence of moisture at about body temperature. It is not pyogenic, but is a powerful toxin producer. We believe it to be a local infection, non-pus-producing, highly toxic, and noninfectious for the general blood stream. Numerous blood cultures have been made from patients in whom this organism has been found, but so far all of them have been negative. Likewise, many arthritic or so-called rheumatic joints in which this focal infection was believed to be the cause have been aspirated and cultured, with negative results. In these respects it is analogous to the Klebs-Loeffler and tetanus bacilli.

The clinical appearance of the throats in which this diplococcus has been found is characteristic, if this term is permissible from the comparatively small number of several hundred cases which have been observed by the author. The color of the mucosa is purplish, distinctly darker than normal, and decidedly unhealthy in appearance. The mucosa of the nose and nasopharynx is similar in appearance. It looks lifeless and as if it had been the seat of disease for a long time. The tonsils of the patients who have suffered from the more serious complications, as rheumatism, arthritis, nephritis, and cardiac lesions, have usually been rather small and submerged, with a brownish-yellow serum exuding from their crypts. This serum has given such tonsils a distinctly moistened appearance. This clinical observation coincides with the laboratory experienee that this organism grows best in the presence of moisture. Most cases in which this moistened appearance over the tonsils was found were seen by me months after the initial tonsillitis, and all of the patients consulted me because of an intractable arthritis, nephritis, or some such systemic condition that had resisted the ordinary treatment. It has also been found in the large cryptic tonsils and in some pockets in the tonsillar fossae after the tonsils have been removed.

We believe that the absorption of chemical toxins from this micro-organism is capable of producing serious pathologic lesions in the nervous system, in

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the heart, kidneys, joints, muscles, glands, blood and respiratory tract. These symptoms or sequelae may be so serious that life itself is endangered. All of these complications have been observed in my clinical experience with this diplococcus. Improvement and cure have followed the removal of this infection in numerous patients who had previously resorted to every known means for the alleviation of their symptoms, whether it was an obstinate asthma, arthritis, endocarditis, myocarditis, or nephritis. By this it is not meant that every patient in whom this organism has been found has been cured, but that we have a record of at least one such case in each type in which the eradication of the focal infection by this organism has stopped all symptoms. The typical clinical history of such cases is as follows:

The patient had a tonsillitis of greater or less severity and, sometimes, even no discomfort was felt in the tonsils, but only an infection in the nose and throat was noticed. Within a few days or a few weeks, some other symptom developed. The tonsillitis or infection of the upper respiratory tract may have been so slight that it was entirely forgotten by the time the complication developed. If the complication was arthritis, or the so-called rheumatism, it usually developed shortly after the initial tonsillitis. As a rule, the severer the attack of tonsillitis the sooner have the complications manifested themselves.

At the present time we have under treatment a patient who had a severe attack of tonsillitis three years ago, with a temperature running from 101 to 103 F. Within two or three days from the onset of the tonsillitis, she developed a myocarditis. She has not been out of bed since that initial attack of tonsillitis. She has had a temperature of over 100 F. and a pulse rate of from 110 to 120 every day for the last three years. Her blood pressure is now about 105 mm. of mercury. She is helpless, not being able to sit up in bed even for her nourishment. She is sometimes so weak that she cannot hold up a newspaper before her.

The first patient in whom this micro-organism was found, associated with much contamination, had a severe chill, followed by an elevation of temperature to 105.6 F. When his urine was examined the next day, it had albumin and hyaline and granular casts. The nephritis and extreme toxemia were his only complications.

Our observation has been that if the tonsillitis is severe, the complications generally ensue quickly; if mild, they develop later, in from one to eight weeks. In our own patients, who have been seen during the initial attack of tonsillitis and treated with vaccines, no complications have developed after the treatment was commenced. The complications have developed in all cases without a chill at the onset. As just stated, one patient with this infection, associated with a mixed infection of the accessory sinuses and tonsils, had a severe chill at the outset. This, however, has been the only patient who had such a chill.

The prognosis of acute tonsillitis in which this organism is believed to be the causative factor varies greatly with the treatment. All of my patients with acute forms of the disease who have been treated with autogenous vaccines have been relieved of all symptoms, and no complications or sequelae, such as arthritis and rheumatism, have developed. Patients who have been treated in this manner made unusually rapid recoveries from tonsillitis. In some of the acute cases there were nephritis and arthritis, but these also have been cleared up promptly by the treatment.

On the other hand, I have seen many patients in consultation, long after the initial tonsillitis, who called on me because of some obstinate complication, as arthritis or some cardiac conditions, and this organism has been found in the tonsils as long as five years after the initial sore throat from which the trouble dated. Many such patients have been relieved by the administration of autogenous vaccine and enucleation of the tonsils, as the case reports will show.

We are therefore led to believe that some of these complications might have been averted by the prompt administration of the autogenous vaccine during the acute tonsillitis. The pain and swelling in arthritis or rheumatic joints in a considerable number of cases of from one to five years' duration have been relieved by this treatment. In some cases in which great changes or bony ankylosis and exostoses have taken place in the joints, the treatment has stopped all evidence of activity, as pain, redness, and swelling of the soft tissues, leaving only the deformity. In a group of cases in which, in addition to the joint symptoms, there were cardiac and renal changes, great improvement in these conditions has taken place.

The symptoms, complications, and sequelae of this infection can best be described by reciting cases which illustrate types. These will follow after a few words on the treatment in a general way.

Treatment.—This consists in eliminating the infection. So far as we know at the present time, the focus is situated within the mouth, either at the root of a tooth or in a crypt of the tonsillar fossae. A culture is taken from the patient, and if it proves positive an autogenous vaccine is made. It is prepared so that 1 c.c. represents 200 millions of the diplococci. The vaccine is given three times a week until all activity of the infection has ceased, and then if the focus is in the tonsils, they are enucleated, unless there is some contraindication. Patients whose teeth need attention are referred to a competent dentist for appropriate treatment.

We believe that the administration of the autogenous vaccine not only stops the activity of the organism by overcoming the effect of the absorption of its toxins, but that it renders tonsillectomy a safer and more satisfactory operation. Frequently after a tonsillectomy there is a low-grade sepsis, which is not only annoying to the surgeon, but also may endanger the patient's life. For instance, we have seen several patients whose tonsils were enucleated for the relief of rheumatic pains immediately have a subacute exacerbation of the attack, which continued indefinitely, and the disease for the relief of which the tonsils were removed was not helped. My experience with the autogenous vaccine treatment of these patients leads me to believe that much of the trouble can be averted by their use as a preliminary step to the operation.

As there has been no precedent in the dosage of this vaccine, we have had to feel our way as we went along. The dosage of even well-known micro-organisms has not been definitely established. As first, 200 millions of the diplococci were given subcutaneously every four to seven days, and gradually increased according to the indications to be met and the reactions obtained. For some time now, 200 millions have been given three times a week. The dosage has varied according to the individual to be treated. In the aged and debilitated and in young children the initial dose has been much

smaller and was gradually increased according to the reactions. If a severe reaction is produced in any one case, the dosage is reduced, and vice versa. The reactions manifest themselves usually by an elevation of temperature of one or two degrees, local pain and redness, slight pains over the body, and frequently by a slight exacerbation of symptoms. As a rule, these reactions become less and less until none are produced. In some cases the organism has persisted in the tonsil even after all symptoms had disappeared and the vaccine had been given until no reactions were produced. The reaction varies greatly with different individuals, and some patients complain of more pain in one arm than in the other.

In previous communications[1] I have reported a number of cases of arthritis, nephritis, anemia, endocarditis, and myocarditis in which the Connellan-King diplococcus was the causative factor. These patients have all been treated within the last two years, and it is now my purpose to add a further report on these cases.

REPORT OF CASES

The first patient who was reported in the preliminary report was treated in November, 1914. He had at that time acute tonsillitis and nephritis. All symptoms disappeared under the vaccine treatment. He had a recurrence of tonsillitis in March, 1915. He received more vaccine, but his tonsils were not enucleated. He made a rapid recovery from the tonsillitis. At the present time he is well and has had no recurrence of the nephritis.

Another patient mentioned in the preliminary report, and reported again later, consulted me in December, 1914, for the relief of a severe arthritis following an attack of tonsillitis ten months previously. She was relieved of all active symptoms by seven injections of the autogenous vaccine. In March, 1915, she returned to me for a tonsillectomy. At that time cultures made from the crypts of the tonsils again showed Connellan-King diplococci. She had, however, no symptoms either of tonsillitis or in the joints. The tonsils were enucleated and a few doses of vaccine given, but there were no reactions. She made an uneventful recovery from the tonsillectomy and has had no further activity in the joints. Her right knee is ankylosed, but she has no pains and can walk without a crutch or stick, whereas when she first consulted me she had great pain and had to use a crutch in walking.

Miss E. S., who was reported as Case 4 in a previous communication,[2] is perfectly well at the present time. She first consulted me about a year ago for the relief of multiple arthritis and endocarditis following a tonsillitis five years before. During the past five years, in spite of treatment, the arthritis was progressive, and this, coupled with her cardiac condition, incapacitated her for work. During the summer of 1915 she received vaccine treatment and her tonsils were enucleated. The conditions were relieved promptly. At the present time she is well, although her joints still show a slight deformity. Her heart has a slight murmur, but it is so much better that the damage can be detected only by a very careful examination. Her general condition has improved greatly, and she has been attending to her usual duties for the last six or eight months.

The following new case is striking, and is typical of a considerable number in my private records:

Miss D. C., aged 21, was seen by me in consultation April 2, 1916. Twelve weeks previously she had had a severe tonsillitis. A few days later she developed rheumatism in nearly all the joints of her body. The tonsillitis soon disappeared under the usual treatment. During these twelve weeks she was confined to bed under the constant care of her family physician, nurses, and various consultants. Her range of temperature was from 101 to 104 F. When I entered her room her condition inspired me with the greatest pity. She was lying there in bed with her arms folded over her chest in great pain, and she said, "Don't touch me." The fingers, elbows, knees, and toes of both sides were swollen, red, and exquisitely painful. Her heart action was very rapid, and while no murmur could be detected at that time, one was expected to appear at any examination. She had been treated with all the usual remedies without effect, and opiates were given to control the pain.

A culture was made from the crypts of her tonsils. It showed a pure culture of the Connellan-King diplococcus. An autogenous vaccine was prepared and was given by her physician three times a week. All other treatment was stopped when the administration of the vaccine was commenced.

As a result the temperature came down within a few days and the heart action improved remarkably and rapidly. The pain and swelling in the joints disappeared with equal rapidity. About three weeks from the time the culture was taken from her throat I saw her again, and she was in splendid condition. She was up and going about as usual, had no pain in the joints, and felt splendidly. It was most gratifying to see her so well and happy.

If space permitted, a great many more cases could be reported, but these are sufficient to illustrate types.

CONCLUSIONS

A study of these cases enables us to reach the following conclusions:

1. The frequent presence of the Connellan-King diplococcus in the crypts of the tonsils or at the roots of the teeth in arthritic patients suggests that it may be specific, and that a simple tonsillitis may be followed by very serious complications, due to an absorption of chemical toxins.

2. The danger of a general sepsis following tonsillectomy might be eliminated if a culture were taken from each patient.

3. If the focus of infection in arthritis exists in the tonsil, the treatment should consist in the injection of an autogenous vaccine until all infection is cleared up and then the tonsils should be removed by enucleation.

4. The blood changes in the Connellan-King diplococcus infections seem to be a simple anemia and, in a few cases, a slight increase in the eosinophils from 4 to 6 per cent.

5. In some cases symptoms other than those for which treatment was instituted have disappeared. For instance, in one patient with arthritis and marked ethmoiditis the culture was obtained from the throat. Within two weeks the ethmoiditis had cleared up, while the arthritis was only slightly relieved. Another patient with serious gastric disturbance, who had found it necessary to remain on a strict diet, was able to eat almost anything after she had received the treatment with the autogenous vaccine.

40 East Forty-First Street.

ABSTRACT OF DISCUSSION

DR. JOHN J. CONNELLAN, New York: About two years ago, Drs. Hasbrouck and Palmer of New York asked me to examine their extracted teeth and ascertain if *Endamoeba buccalis* was present. We were unable to find the endameba in any case. As several of the cases showed abscesses, cultures were made. The organisms found were the *Streptococcus viridans*, from the apex of the tooth and *S. hemolyticus* from abscesses. We also found in some of the cases a gram-negative diplococcus which I had not seen before, nor was there anything in literature calling attention to this organism. I then asked Dr. King if he would make cultures from other parts of the throat and mouth. The result of such work showed this organism present in the crypts of the tonsils and around the teeth.

1. King: Abstract of a Preliminary Report on the Connellan-King Diplococcus Infections of the Throat, Laryngoscope, 1915, **25**, 229; The Connellan-King Diplococcus Infections of the Throat, with Especial Reference to Rheumatism, Med. Rec., New York, 1915, **88**, 958.
2. Second reference of Footnote 1.

Since that time we have found it in numerous cases at the apex of extracted teeth, some of which were decayed and others in good condition, but in which the roentgenogram showed abscess formation. The organism is a typical bean-shaped gram-negative diplococcus. It is slightly smaller than the gonococcus when it has attained its maximum growth on its best growing medium. I have been unable to find this organism outside the mouth and throat. Its best growing medium is human blood agar with a little veal serum added. The main point in its growth is the reaction of the medium. On not more than 0.2 per cent. acid will the organism grow. In preparing the medium it is absolutely necessary to use the titration method. Litmus paper should never be depended on. It does not produce acid as produced by other gram-negative diplococci, described by Dunham, from the nose and throat. In using the Hiss sugar serums, we get no reaction except coagulation of albumin, showing that it is not a gas producer; which brings to mind why when found in these apparently good teeth with abscess formation at the apex there was no history of pain by the patient. The organism is best grown at a temperature from 39 to 40 C. It has a characteristic appearance on the medium, colony being a light, dull yellowish-brown with a rounded contour. The size of the colonies is approximately that of the *Staphylococcus albus*. Dunham, Van Lingelshein and Elser and others have reported several gram-negative organisms found in the mouth and other parts of the body, but this organism does not compare with any that these investigators have reported. As to the animal injection, intraperitoneal injections of guinea-pigs, dogs and white mice produced no symptoms. Two cubic centimeters of sterile salt solution (a cubic centimeter containing approximately 100,000,000), were injected into the marginal vein of a rabbit, producing death in four days. The organism was recovered in the heart. Complement fixation experiments are now being worked out by an investigator in New York City.

DR. EMIL MAYER, New York: My own experience does not entirely tally with that of the speaker in that I cannot report anything like such a percentage of cures. I had one instance which was very interesting, a nurse in the Training School in Mount Sinai Hospital, who had been suffering for more than a year with a temperature ranging daily from 101 to 104 F., without any known cause. She came to me because her tonsils had been troubling her for some time and she wanted to have them removed, but I felt that that was not the thing to do in connection with her condition so far as this temperature was concerned. I then made a test and sent it to Dr. Connellan and he reported very promptly that it contained the Connellan-King diplococcus and sent me some vaccine. The vaccine was used and to my delight and surprise she lost her high temperature. This lasted but five days. At the end of that time the temperature went bounding on as before. The second case was that of a young woman who came to me complaining of a mastoid pain, but further examination revealed that she was suffering from a general periostitis. We found the same diplococcus-bacillus, and the result of the vaccine was all that could be desired. She got entirely well. The third patient was the most interesting who has come to me, and I am anxiously awaiting the results. A man complained of a rather slight pain in his throat. There was nothing much to be seen there. I looked on it as a little local infection, and made application of the usual remedies. With that he seemed to get entirely well; but in three weeks he came again with the same pain in the same place. I suggested that I take a culture, and the result was a most beautiful colony of these diplococci-bacilli. The question is, Is this one of the cases in which we probably have a forerunner of an arthritis, and shall we advise the man, in spite of the fact that he has had apparently few symptoms, to go through the vaccine treatment, or shall we wait and see? If this man should decide not to take that treatment and subsequently should develop rather a severe arthritis, I think we should be very much in the position of demonstrating that this was undoubtedly the causing factor in his arthritis.

DR. VIRGIL P. GIBNEY, New York: I had been looking for a long time on the *Streptococcus viridans* in the roots of teeth or about the alveolar processes as a cause of many of the arthritides. On still further investigation I found that the Connellan-King diplococcus was a possible cause of arthritis. We have, therefore, two causes of infection in the buccal cavity, namely: *Streptococcus viridans* and the Connellan-King diplococcus. One of the cases shown by Dr. King I recall very well. It was a case of osteoarthritis of the hip. I found restricted movements and history of slight trauma. Having acquired the habit of looking for the cause in the buccal cavity, I found some suspicious teeth, and had a roentgenogram made which confirmed my suspicions. I also found that the tonsils needed attention. Dr. King and a dentist took the patient in charge, and he made a fair recovery. He has still a little lameness, but he suffers no pain, and the outlook is very hopeful that he will be free from lameness and deformity. Confirming what the doctor has said about the progress of the patients under the use of vaccines and the removal of the focus, I wish to say that the cure of an osteoarthritis is not always phenomenal. Recovery does not take place in a short time. You will recall that this disease is accompanied by osteophytes about the margin of the joints making movement painful and it requires some little time to get rid of these deposits.

DR. ISAAC H. JONES, Philadelphia: Dr. W. P. Conway of Atlantic City had frequent attacks of arthritis for eight years. He became progressively worse and developed a severe endocarditis and such a marked nephritis that at one time he had complete suppression of urine. His loss of weight was marked. Dr. King found his diplococcus in the tonsils, gave an autogenous vaccine and soon after removed the tonsils. Dr. Conway is now in perfect health. It seems to me that we should attribute the cure to the removal of the tonsils rather than to the vaccine, although it is important to note that the vaccine produced a marked improvement even before the tonsils were removed.

DR. JAMES J. KING, New York: The patient Dr. Mayer spoke of as having the high temperature was afterward found to have a tuberculous peritonitis.

DR. GEORGE F. COTT, Buffalo: Would you get the same results in removing the tonsils after using the vaccine?

DR. KING: That is a very important point. Occasionally after a tonsillectomy a low-grade infection may continue and even endanger the patient's life. By giving the vaccine before you operate you clear up that field and operate in a clean field and in that way avoid this danger. To be sure, we do not see these infections very often, but they come sufficiently often for us to give the vaccine, clear up that infection, and then operate in the interval, just as we do in appendicitis. By this means the operation is safer, and it is possible that all of these cases might be prevented if we would do this. I have had no infection following my tonsillectomies in cases in which I have given the vaccine before the operation. I have sometimes found the infection still in the tonsil, but it was inactive. I had one patient in whom the culture was taken for the second time about a year after the vaccine was given. We found the infection in the tonsil again, but there was no activity, whereas when I first saw her she had a great deal of arthritic pain and had to walk with a crutch. The vaccine stopped the activity, stopped the pain, the arthritis disappeared, she got rid of the crutch and was perfectly well when she came back to have her tonsils removed.

Bartholin's Tercentennial.—October 20 was the three hundredth anniversary of the birth of Thomas Bartholin at Copenhagen. After studying at all the universities of Europe except the German, which at that time were desolated by the Thirty Years' War, he settled in Copenhagen and in 1647 became professor of anatomy in the university. He changed to the chair of general medicine at the age of 40, and published a number of works on the history of anatomy and medicine besides reports of his own researches. He never cared to practice medicine, and fled from Copenhagen when the plague swept down on it, but his fame placed Denmark in the lead in science during his career. His works are in Latin, and his name is Latinized, his real patronymic having been Bertelsen. The University of Copenhagen had a festival gathering, October 20, in honor of his tercentennial, Professor Maar delivering the memorial address.

MEDICAL SUPERVISION OF STREET RAILWAY EMPLOYEES *

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The highly complex character of modern business, and by this I mean big business, demands a physical endowment that is commensurate with the high intellectual endowment which has made possible the great industrial establishments that control the business of the world. Such an organization requires diversified talent and as its growth is dependent on continuous existence, it is necessary not only that the general health shall be conserved, but that by continuous medical supervision, following elimination of defectives by preliminary examination before employment, the places of those whom disease or advancing age render inefficient shall be from time to time filled by trained subordinates. To meet these conditions and to preserve the traditions of the business is the problem that every large corporation is confronted with.

The aim of the employer is obviously to select from among those who apply a number who will give promise of developing after employment. The applicant, excepting in special cases, is raw material that must be molded into efficiency, and because of the specialization which is the very essence of modern business, every man is not found qualified.

Modern business differs from that of a quarter of a century ago in many particulars. Under the old order, the man was not considered an entity. He was merely a hand. He came and went as the needs of the business demanded. His relation to his employer was a negative one. His joy and his sorrow were shared by no one and the tenure of his position was dependent largely on the whim of his immediate foreman. When he became sick his place was filled by another. He was dependent on the cheapest, unskilled medical services for his recovery and during his disability no provision was made for his immediate financial needs. When he left the shop he lost all contact with the organization which employed him.

This deplorable condition undoubtedly was the result of the sudden expansion of business in the decade following the Civil War. The small shop gave way to the factory and every industry took on a corporate character. The "corporation was without a soul," and in the keen competition which necessarily followed the man was lost sight of. He was merely a hand at a machine and, by comparison, far less important than the machine itself.

In the mad rush to accumulate fortunes the managerial mind was centered on the results of the year's work only and the sum of human misery that was added to the account found no place on the balance sheet. Not only was business unmindful of the welfare of those whose life blood was poured out to create it, but it was also blind to the thought that the very essence of sound economic management was dependent on the welfare of the individual unit; and that unless that individual is physically and mentally alert, economic waste occurs.

The railroads were among the first to learn the value of taking a human interest in their employees. While the character of the occupation was necessarily hazardous in comparison with many other industries, it was by no means in a class by itself in this respect.

In the development of modern business with its very humane interest in the welfare of its employees, we find the railroads many years in advance of the other industries. Until within a few years no voluntary medical services were offered injured employees in our great American industrial establishments. The first aid rendered was given grudgingly and in most instances was rendered by a city-maintained hospital without expense to the manufacturer. The change of policy which has occurred is not altogether due to any softening of the heart, but rather to a combination of public sentiment expressed in the concrete form of industrial injury compensation laws and to more enlightened management; the result of education along public health lines by our government.

How different from the very beginning of their corporate existence has been the practice of the railroads in taking care of their wounded employees. They have recognized for more than a half century that injuries incident to operation were properly chargeable to the cost of operation. This thought is the basis of all welfare work, as it provides the capital which is essential to making welfare work practical rather than sentimental.

Railroad surgeons have been identified in the public mind with the operation of railroads ever since railroading began. In no other industry have they been deemed so essential. The general supervision of the health of the employees, which follows as a corollary to the general employment of surgeons throughout a large railway system, is a fact of importance that should not be lost sight of. The friendly suggestion by the doctor to the man who is in failing health is the human touch of the corporation.

Again, the general efficiency of railway employees is a matter of common knowledge. The underlying fact of this efficiency is that railway men are picked men. No one goes to work in the operating department of a railway until he has been examined by the company doctor.

Here then is the first important lesson the industries must learn; that any kind of efficiency that is not based on a sound, alert, well-balanced human machine is bound to be economically disastrous. The industries are just beginning to learn that the human mind is a wondrously complex mechanism and that machines cannot be adapted to men, but men must be sought out, by a process of elimination, who can adapt themselves to the machine. They are learning the lesson also that physical fitness is a prerequisite to efficiency. The matter of maintaining the average health of employees by physical examination, therefore, before and during employment, is in conformity with the advancement of modern medicine, which is disfinctly preventive. In recruiting for the army and navy, how careful at all times has the government been in its selection of material. No matter how great the emergency, the culls are left behind. With our thoughts centered at this time on preparedness, it is gratifying to the managements of the great railways to know that the government recognizes, in the well-trained, selected and disciplined men who make up the vast army of railway employees, an auxiliary effective arm for the military service.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

* This article and the one by Dr. Smith which follows are part of a symposium on "Industrial Medicine." The first two articles by Drs. Mock and Clark appeared last week.

The relation of human impairment to accidents is well known. They bear to each other the relation of cause and effect. It is therefore quite as important to save a man by a process of elimination from himself as it is to safeguard fellow employees who will be put to undue hazard by reason of his infirmities. The best safeguard against accidents is an alert mind in a virile body; on the other hand, the sure preliminary to accidents is an exhausted, devitalized human machine.

In a diversified business the man seeking employment will represent every possible variety of human activity, from the illiterate foreigner who applies as a laborer to the highly trained engineer and accountant. For the particular department or bureau that is applied to, certain characteristics of mind and body are required. The applicant himself, by a process of elimination, places himself in a particular group when he applies to a specific department for employment. It is true he may be mistaken in his estimate of his ability, but we must at least recognize that he has specialized in his own case. This type of man to my mind is highly desirable, because in all but the lowest types of labor, where the bare necessities of life force the man into activity, we have the elementary idea of fitness expressed.

The necessity of a preliminary examination of applicants for employment would seem to admit of no serious debate. Before the Milwaukee Electric Railway & Light Co. organized the Employees' Mutual Benefit Association no one was examined prior to employment excepting those who were to be employed in the operating department of the company. The advantage of a medical examination was obvious.

Had it not been for the industrial depression following the outbreak of the European war, it is altogether probable that these results would not have been attained. As men, one after the other, left their positions, the positions were not refilled, and the working force was reduced to the minimum. For months little change occurred in the personnel and a marked change occurred in the accident experience in every department. An improvement was also noted in the general health of the men.

Some idea of the extent of the accident reduction, involving not only accidents in the industry itself, but accidents to the public who rode on the cars or were brought in contact with them, may be had from the statement that in the year 1915 the cost for injuries and damages was nearly $100,000 less than in the preceding year. In the year 1915, also, the average sickness per man per year was reduced from eight days in 1913 to a little more than four days per man per year.

We have in these combined results the summary of two factors: (1) a campaign of education, both within and without the company for the prevention of accidents and (2) the result of a careful preliminary examination of employees, as well as a maintained high level of health incident to a very close supervision of the general health, by dividing the men employed into groups, in which they could be daily observed and in which the relief from the lesser ills which lead to greater could be had without delay. It may be argued that being a medical man I am looking through prejudiced spectacles and claim too much as the result of medical supervision. On account of the difficulty of obtaining labor at any price and almost under any conditions at the opening of the work this spring, the company was forced to abandon temporarily its examination in common laborers. Great stress had been brought on me as chief surgeon to relax the requirements in nearly every department. The management, however, took the position that such excellent results had been obtained during the past two years that unless some unforeseen contingency arose which might temporarily force a further abandonment of examination, nothing should be done to relax the rule which had given us such a good showing in the year 1915.

Preventive medicine has achieved a victory in convincing big business that medical science is an economic factor in conserving the health of those who are essential to the advancement of the business. Any factor which promotes efficiency by maintaining a high level of general health will interest the business men who are at the head of modern industrial establishments, and the more broad-minded and far-seeing these managers are, the sooner will they come to recognize the importance of medical supervision of employees.

I have been surprised at the results that have been obtained in our own company. The action of the management in insisting on the continuance of the preemployment medical examination at a time of great industrial activity, when men are at a premium, is to my mind an excellent endorsement of the things we are here striving to obtain. We are not theorizing in this matter, and when we can show results which make for industrial efficiency, we have taken the first step toward raising the general health of the community at large. How short sighted a business management must be which ignores facts like these. The more difficult it becomes to obtain employment, the more desirable that employment will become. The military establishment is founded on the theory of life employment of the physically fit for its officers. Modern business must follow this example, and the railroads particularly are interested in the matter of training men to fill the positions higher up as these become vacant. There are traditions in every business and every successful business has been true to its traditions. We know the percentage of those who succumb after careful physical examination. We therefore must meet the man who seeks employment with obstacles which put him to a severe test; and if he survives the test, we may look for returns on our investment in his employment.

We have seen that the employer will have to look about him to find the man suitable for the work in hand. We must assume that the head of a department has the best interest of his company at heart and will not employ a man who is manifestly incompetent or who by reason of manifest physical defects would cause undue hazard. When labor is scarce and the management, because of the necessities of the business, holds the head of the department to an average, rather than to a high rate of pay, the temptation will become great to employ men who are physically below the average.

We recognize that certain trades produce characteristic injuries to many who follow them and that in men working at a bench these deformities do not create a hazard nor do they lessen the efficiency of the individual. I would not think that such men would be employed when others who are perfectly sound are available, excepting in case the man who had lost a portion of one or more fingers was a man highly skilled at his trade. Among laborers, who for the most part are temporary employees, the loss of portions of the fingers, providing it did not interfere with the normal grip, could well be overlooked.

In a large business undue influence is frequently brought to bear to obtain employment in going companies for relatives who frequently are derelicts. A disposition to yield to these demands can bring forth nothing good. They are not emergencies, as far as the company is concerned, and they should be employed only after the most careful investigation into their fitness.

As an examiner of trainmen for many years I can bear testimony to the fact that men who have for a number of years worked for industrial companies and who from time to time have been laid off for lack of work have entered the service of our company with unbounded enthusiasm, because they were obtaining employment which would give them a fixed income. In a going concern like ours this fact should not be lost sight of, for the man we are employing, it is fair to state, is receiving a greater benefit than we are obtaining in his employment. This fact, in itself, by relieving the employee of worry about the support of his family, enables him to concentrate his mind on his work. I know of no greater incentive to good and efficient service than the thought that your employment is permanent and that the officers of the company are interested in your personal welfare.

That every business must make an analysis of its own conditions is illustrated by the following experience. In the year 1914 in an effort to discover the cause of a loss in efficiency of trainmen, amounting to 15 per cent., because of alleged sickness, our company decided to place a medical man for a period varying from one half to one hour each day, excepting Sundays, in each of our car stations and large car shops. It was hoped that by giving aid to men who reported sick, before the sickness became disabling, this percentage of lost efficiency might be materially reduced. It was suspected also that there was a definite amount of malingering on the part of the younger employees, whose desire to get rid of their last pay check was an obsession with them. At the same time it was feared that the men might feel that a censorship was being maintained, and before putting this into effect, the matter was submitted to the directors of the Employees' Mutual Benefit Association, who represented the trainmen and other workmen. To our gratification it was received as intended, and immediately put into effect. The beneficial effect of this personal contact between medical man and the employee was immediately noted.

For the month of January, 1916, two years after the inauguration of this system in one of our largest stations with over 600 men, there were but 623 days of sickness. I mention the month of January, 1916, because throughout the eastern portion of the United States in that month, as well as in December, 1915, we suffered from a severe epidemic of the grip. Notwithstanding this, with thousands of cases in our city, only 623 days were lost through illness during the month by more than 600 men. But we must not claim for medical supervision only the general good health of our trainmen. The company has cooperated with us in the matter of better cleaning and ventilating of street-cars, the building of sanitary car stations and by increasing the average wages of its employees with the increase in the growth of the business. This has enabled employees to live at home under far more sanitary and healthful conditions than were brought to my attention twenty years ago, when I first became associated with the company.

In the general office building, where approximately 400 clerks and other employees are housed, spring water only is used, which is brought nearly twenty miles to the city from a spring owned and developed by the company in the famous Waukesha district.

The more regular hours of duty brought about by a more intelligent study of schedules is also a large factor in health conservation, because these men work in the most inclement weather and under conditions frequently in which exposure to the elements becomes a positive menace.

That any city railway employing a staff of surgeons can undertake large welfare activities for the betterment of the health of its employees, their wives and dependents at comparatively little expense is illustrated by the experience of the Milwaukee Electric Railway & Light Co. during four years. With a contribution of $6 per year per man for each member of the association, and an additional $6 per man per year contributed by the company itself; together with the voluntary services without pay of the officers and other employees of the company; in addition to paying $1 per day for 100 days of continuous sickness, and 50 cents per day thereafter for a second 100 days, and $300 for a death; the giving of all medical and surgical services free to its members, including the services of a welfare secretary and a visiting nurse, in a short period of four years the Employees Mutual Benefit Association has accumulated a reserve fund amounting to approximately $50,000.

So great has been the reduction in the average days' disability per man per year, and so great is the confidence of the management that this ratio can and will be preserved by the effective organizations which we have, that in January, 1916, without further expense to the members of the Employees' Mutual Benefit Association the company increased its medical service so as to include the wives and dependents of all members. This necessitated the increase of the medical force and added largely to the expense for medical supervision, but in a most comprehensive manner it has endeavored to relieve the financial burden of its employees for medical and surgical services to their dependents, and by the making of these services available it has encouraged health conservation, by enabling the employee to call the doctor with the early manifestations of disease, when for financial reasons he would otherwise delay the call.

The importance of this service I have but to suggest to this gathering. Would space permit, a summary of the work performed during the first five months of this year would be most interesting. I hope, however, at some future time when the work is more advanced to present an analysis of this work, of which we have a complete record. It embraces the entire field of medicine and surgery and offers to those who are members of our surgical and medical organization a most interesting and instructive clinic. There are exceptions to all rules and we note an exception to this medical service. We do not do obstetrics and we do not treat the eye and ear. We do, however, remove tonsils and adenoids.

May I close this paper with a brief statement of the activities which as a corollary have come as a result of the organization of an Employees' Mutual Benefit Association, which has served as a melting pot into which have been poured the burdens of the employer as well as those of the employee, and out of which has come a record of health, happiness and prosperity

which I do not hesitate to say, because I have looked into the matter thoroughly, will not be found in any other similar or large corporation in any part of our country?

We have a savings and loan association, additional life insurance, sick and accident insurance, a provident loan fund, where money can be had without interest, old age pensions, a women's auxiliary, indoor baseball, bowling, outdoor baseball, a band, a dramatic club, and all the auxiliaries which go to make up healthful recreation and promote happiness.

It is the combined result of these various activities, which cements together the body of employees and holds them to their work, improving the condition of their health and teaching them the wise practice of economy.

In the words of our welfare secretary:

In the work of caring for those who are sick the women's auxiliary, which was organized during the past year, has proved extremely beneficial and is unique. There are innumerable cases in which the regular benefit provided by the Employees' Mutual Benefit Association does not completely meet the requirements of the case. When the mother of a family of small children is sick for a long period of time, it is a great relief to have the friendly services of members of the women's auxiliary, who step in and perform some of the household duties, taking from the mind of the patient much worry, and making the conditions most favorable for a speedy recovery. In cases in which a mother must be removed to a hospital the care of small children becomes imperative, and if there is no relative who can step in to perform this duty, members of the women's auxiliary have very generously assisted to solve the problem. This organization has also provided baby outfits for needy infants, when proper provision has not been made for the new arrival in the way of clothing, and a number of poor families have been provided with Christmas cheer through this same organization.

Beginning in 1912 with the Employees' Mutual Benefit Association, which was organized primarily to create, manage and distribute a fund to provide free medical assistance for members unable to work because of sickness or because of accident, when not within and subject to the provisions of the Workmen's Compensation Act, the association has become a most efficient machine for conserving the health of those who work for this company, as well as by caring for their dependents whenever disease or accident necessitates medical or surgical aid. We have seen this association expand far beyond the limitation contemplated as its field of operation when it was first organized. Its greatest field of usefulness has not been the payment of sick benefits or death claims, but rather the conservation of the health of its members. Through the opening of doctors' offices at places of employment, it has been possible to reduce the amount of time lost on account of sickness by fully 40 per cent., making a total annual saving of something more than 10,000 work days.

Once a year, divided into two days of fun and recreation, 12,000 people, including employees, their wives and families have a picnic with a 20-mile trolley ride.

The electric industry today is attracting to itself a better and more educated class of men, because the requirements of the business with its diversified interests demands a high degree of intelligence. In a large corporation it is possible to have a feeling of intimate relationship, and the medical man perhaps above all others comes closer to bringing about this happy condition. We feel in Milwaukee that few corporations will be found whose gifts to their employees in the matter of health are so comprehensive and far reaching. The very best that industrial life holds for any individual under ideal conditions is employment by which he may earn a living for himself and his family, in work that is at once congenial to himself and useful to his fellow men, and that gives him an opportunity to rise to higher places of responsibility; that provides him an income sufficient to permit of his putting aside a surplus large enough to care for him, both in sickness and in old age; and that permits his work to be wholesomely interspersed with periods of rest and recreation.

BAD TEETH AND THEIR EFFECT ON THE LABORING MAN'S EFFICIENCY*

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Efficiency from a health standpoint is difficult to determine. We know, for instance, that if the water supply of a community is pure, the community is saved economic loss from typhoid; the same can be said of the milk supply and of all the precautions necessary to keep a community in health.

This is true from a dental standpoint. If we teach a large body of people mouth hygiene we cannot say how much better their health will be, or how much we have saved them through the prevention of mouth and systemic diseases.

In the past sixteen months I have made 30,000 mouth examinations, for 17,000 Americans and 13,000 foreigners. Of this number, 96 per cent. are in need of dental service; only 4 per cent. have clean, healthy mouths; 9 per cent. are without cavities and could be made healthy by a thorough cleaning; the balance have all the pathologic conditions known to dentistry, pyorrhea pockets, decayed and abscessed teeth, mucous plaques with all the virulent bacteria ready to cause disease the moment there is a lowering of the resistance. The danger from a dirty mouth is quite generally recognized, practically all contagious diseases being transmitted by the nose or mouth and the mouth is the more dangerous of the two. In a mouth free from caries, but with deposits of calculi and mucous plaques, gingivitis develops, and because the gums are painful and bleed the man gives up mastication, and food passes to the stomach carrying pathogenic organisms. The stomach cannot do double duty and in time disease results. And so by teaching oral hygiene to the laboring man and he in turn carrying the idea to his family, we are cutting down disease, not only in the factory, but in the community.

Suppose an epidemic of scarlet fever breaks out in a city. The health authorities find these cases along a certain milk route, and they look up the farms on which this milk is produced and find a case of scarlet fever. I have never heard a satisfactory explanation of how that first case started, apparently spontaneously. Could it not be a case of lowered vital resistance from some cause and a dirty mouth, in which the germs of scarlet fever predominate? Whether this be true or not, the teaching of oral hygiene to the laboring man is important if it does nothing more than prevent caries, pyorrhea, and other mouth diseases.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Now in 30,000 mouths we find about 60,000 cavities, and I intend to show what one cavity means to the average laboring man. First, there is the slight opening of the interdental space; food packs into the space, irritating the gum. Quite naturally he gives up mastication on that side of the mouth; caries progresses until the pulp is exposed, the tooth aches, and he goes home from work, often purchasing a bottle of whisky on the way. I have had cases in which the patients have admitted spending their last cent for whisky and had to borrow money to go to the dentist.

The pulp in the tooth may die in twenty-four hours, or it may stop aching, only to start again in a few days. If the pulp dies, in a period of time we have the acute alveolar abscess and at last in desperation he goes to the dentist and has the tooth extracted. During this period of time, due to disuse, quantities of filth have collected over the other teeth on that side of the mouth, caries has started in the tooth next to the one extracted, and within a few months he again goes through with the same experience. By this time the other teeth have become decalcified, and within a comparatively short time he loses every tooth on that side of the mouth, and it is easy to understand this man could not be marked 100 per cent. in efficiency during this period. If we admit the teeth to be necessary to mastication and digestion, we know that the employee cannot enjoy the good health he would have had, had we been able to prevent that first cavity or at least to persuade him to have dental service before it was too late.

In 30,000 mouths we find about 18,000 extractions necessary, and experience shows these teeth to be practically all abscessed. This is a difficult problem in efficiency, especially so if the findings of the research commission of the National Dental Association in regard to the relation of infections of the mouth to general systemic disorders prove only part truth, but the indications are at the present time that these apparently unimportant foci of infection are the cause of many disorders.

The average dentist knows little at the present time regarding the effect of these foci of infection. If it is arthritis, stomach ulcer, heart lesions, pernicious anemia or any of the nervous diseases of a neuralgic type, the medical man is consulted. If it is true that these foci of infection are causing these obscure diseases, it is time for the dentist to learn more of medicine, so that he may hold intelligent consultation with the physician, and the physician should seek the consultation of intelligent dentists. One case along this line I wish to report. After working for the company for six years this man laid off in November, 1913, to have a mastoid operation. In July, 1915, he applied for reemployment. Physical examination showed ankylosis of the knee and poor physical condition. The mouth examination showed a very bad case of pyorrhea and several abscessed teeth. His mouth may not have been the cause of his trouble, but the surgeon overlooked the possible cause, and the patient should have been sent to a dentist. Had this been done, he might at this time be an efficient workman. On the other hand, there are no doubt a good many of your patients whom you are burying on account of poor dentistry.

I wish to report a case which to my mind shows how bacteria are carried by the blood stream. A man injures a tooth in such a way as to kill the pulp. After a period of time an alveolar abscess develops. I have seen a number of these cases without a cavity in the tooth, no pyorrhea, and gums in a healthy condition. There is only one way that infection could occur. The bacteria were carried there by the blood stream from some focus of infection. If they are carried to the teeth, it follows naturally that they are carried from these blind alveolar abscesses.

If a man presents himself to our physical examiners with a suppurating toe-nail or infected finger nail, he is promptly rejected as being unfit for employment, likewise if he has an acute alveolar abscess with a swollen jaw he is rejected until the cause has been removed and the swelling subsides, but we cannot reject these men with 18,000 necessary extractions, knowing or at least suspecting the effect on their efficiency; if we did, it would mean the rejection of 25 per cent. of all people applying for employment. The best we can do is to advise the removal of these teeth. In 30,000 mouths we find 40,000 teeth extracted, and that tells its own story, the inability to properly masticate the food, and you medical men know better than I the results of improper digestion which are bound to follow.

One way we can estimate the loss of efficiency due directly to toothache is by watching the piece-worker. Very often a man engaged in piece-work will say: "Doctor, this tooth has ached for a week." The loss of money to these men runs from $3 to $7 for the week. Men suffering for a day report losses of from 35 cents to $1.50.

In 30,000 mouths we find 60,000 cavities and 18,000 extractions necessary, 78,000 in all. If each one causes an average loss, through waste of time and cost of repair, of $2, it means a cost of $156,000. In New York City last year 67,000 children failed to be promoted to higher grades because of absence, 80 per cent. of which can be laid to defective teeth, and it costs New York $1,037,696 to duplicate a year's schooling to these absentees. These same children in a few years will be employed by our industrial concerns and a large percentage will fail of promotion on account of poor health due to bad mouth conditions.

What can be done by way of prevention? The first thing necessary is the cooperation of the medical man; he is the first to see the pregnant woman; he should instruct her regarding what to eat to supply the necessary mineral salts to build bone and teeth, and send her to the dentist for instruction regarding the care of her mouth. The dentist should instruct her regarding the mouth of her child when it arrives, also regarding the care of that mouth after the teeth begin to erupt. It is possible to take a child at this time and prevent the formation of cavities, and it is most important that this should be done.

We find at the present time a great many dental clinics in the public schools. This is a good work, but the child is 6 years of age when he starts school and a great deal of damage has already occurred, so the work of the clinics is largely reparative, but still it is not too late to teach the children oral hygiene. They should be taught how to live, which is vastly more important than certain subjects which have been a part of the school curriculum in past years. If this were done, they would leave school and enter our industrial institutions better equipped to earn a livelihood.

During the past two years dental clinics have been established in a number of large manufacturing con-

cerns. These clinics are operated along different lines, but all with the same general idea in view, that of cooperating with the medical departments in bringing about more satisfactory health conditions.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MOCK, CLARK, LEMON AND SMITH

DR. JOSEPH C. BLOODGOOD, Baltimore: I am interested in this question from an academic standpoint, from the standpoint of the teacher. We must apply our knowledge of first aid in the introduction to the industrial worker of the larger problem of prevention and the care of his health and efficiency. The industrial worker will see quickly a diminution in the long period of disability and a diminution in the number of cases of loss of function from bad results, not of bad surgery, but of the late application of good surgery. It is important for the industrial surgeons to know the established rules of surgery today. If they wish to influence the laborer their results must be such that there will be no question in the minds of the ones who are helped that it is for their good. Along with that, in industrial surgery as in preventive medicine, there must be something else, otherwise our interest will lag, and our efficiency will decrease, and that something else is a research for the solving of the unsettled problems. Not one single bit of progress has been made in the treatment of infected wounds for a quarter of a century. Surgery of infected wounds was developed twenty-five years ago, but as soon as surgical bacteriology developed clean surgery, we lost interest in it. For sixteen years there has been no research on the treatment of infections. The development in medical bacteriology led to the protection against typhoid fever. Why? Because there was an immediate need for protection. We have not any typhus now, but there are some infections that might creep into this country in the future, and those are the ones that you should study so that we will be prepared.

DR. J. W. SCHERESCHEWSKY, Washington, D. C.: I would like to emphasize the wonderful educational effect which is bound to result from the personal relation of the industrial physician to the worker. Everybody is agreed that community sanitation, as represented by state and municipal boards of health, has proceeded almost as far as it can go, and the reason for this is that we cannot influence the people, individually, by community sanitation. The great importance of personal hygiene in enabling the individual to reach the maximum of his efficiency is being demonstrated from day to day by the data which are being collected. It is evident, therefore, if we want to make substantial advances toward our ideals, we must be able to impress on the individual the vital necessity for the care of the body, besides securing the maintenance of a sanitary environment around him all the time, not only in the shop, but in the home.

The development of industrial medicine and surgery offers advantages to educate the individual in these particulars which cannot be excelled in any other field. The workers, surrounded in the workshop by ideal sanitary conditions, are able to contrast those conditions with the conditions which obtain in their homes. In this way they are unconsciously led to desire a higher standard of environment. The personal relation of the physician to the worker in the workshop is a means by which the principles of personal hygiene may be so inculcated that they are applied and not regarded as fads of the medical profession; for every day around the worker there will be shining examples of the results of the application of principles of personal hygiene. In this way we see that when this science of industrial medicine and surgery is properly developed, we will have at our command a means of popular education which can hardly be excelled. There are about 30,000,000 industrial workers in the United States, very nearly one third of the population. Probably 90 per cent. of the population should be influenced by these means of personal education. I think the industrial physician and surgeon has it in his power to influence, more than any other body of men in this country, the consistent development and progress in this country toward ideals of sanitation.

DR. W. H. PRICE, Detroit: If I heard right, Dr. Clark tells us that the examinations he has made take, on an average, ten minutes. I disagree with Dr. Clark. From an experience of 15,000 medical examinations, I know that it takes much longer, and I am afraid we do not make as careful an examination as Dr. Clark has made. I know that last year Dr. Fiske reported they took an average of twenty minutes. A number of physicians disputed that such a thing as a thorough medical examination in twenty minutes was possible. A blood pressure examination will take a minimum of five minutes, and then sometimes it is not accurate and we have to take it two or three times. I know that Dr. Scheres-chewsky and his assistant spent forty minutes or forty-five minutes on an average in 30,000 examinations they made in cooperation with our board, so that I believe that ten minutes is rather a short time. This brings me again to the question of the absolute unworthiness of statistics based on a non-standardized examination. If one examines in five minutes, another in ten, another in forty-five, etc., and all those figures come together, how can we compare the results? I believe that nothing better can be done by this section than to appoint a Committee on Standardization of Industrial Medical Examinations, so that in the future we should be able to compare those examinations.

DR. FREDERICK L. VAN SICKLE, Olyphant, Pa.: I feel that we have not ventilated the subject to the people on whom we must depend to carry out the very admirable suggestions that have been made by Dr. Mock and Dr. Clark. I practice in the anthracite coal fields of Pennsylvania, where we have a combination of traumatism and the introduction of foreign bodies. Wounds are made at quite a distance from the emergency hospital, so that the ideal measures that have been suggested by Dr. Mock and Dr. Clark are not possible. My point particularly is efficiency insurance in medical and surgical work as applied to social and the new laws that are coming into existence in the United States. Thirty-three states have workmen's compensation laws, and in five states health insurance measures will be introduced shortly. Some of the ideas introduced by Dr. Mock are Utopian, but it is necessary as a step in the progress of this work to have some educational propaganda made by which the men who are most vitally interested, that is, the local practitioner who receives the appointment for this kind of work, be brought up to some particular standard of efficiency. The medical examination is also made in a very superficial manner. It is evident that we must have some method of standardization of examinations of the workman. I feel grateful that the questions of social insurance have been taken up by the American Medical Association and it has seen fit to confirm the report of the Reference Committee on Legislation and Political Action which places the committee of the Judicial Council of the Association (which was appointed last year on social health and insurance), in a way to act, and it has been recommended to the various states that they appoint a like committee from whom this information can be obtained.

DR. D. B. LOWE, Akron, Ohio: Dr. Clark made a plea for a complete examination. A complete examination to me means a stripped examination. In the organization which I represent, there were 12,000 examinations made on employees at the time physical examinations were instituted. These 12,000 examinations were made by part-time physicians who spent practically only two hours a day at the shop. In the 12,000 there is not one case of tuberculosis reported. The urinalysis may or may not be necessary in certain cases. Blood pressure may prove otherwise on general findings. I have come to the conclusion that it is best for all our examiners to make a complete examination, examine the urine and take blood pressures, and sometimes even examine blood. All of us lack sufficient training; however, if we do some laboratory work along with the physical examinations, it will tend to train us. I do not cast any reflections on the men we have in our employ because they must be graduates of a Class A school and have at least a year's training in a recognized hospital with six months' service on the medical side. Running through 150 men a day, an average of about thirty-six to the examiner, with a large organization calling for men that must be put to work, it is impossible at the present time to select men for the work. It may be possible

in a smaller organization, but we cannot do it. As to the rejection for hernia, the laws of various states differ. In Ohio we do not have to reject every hernia case, if the company will stand behind us on the question of finance. We made arbitrarily three classes: those who have a small hernia, those who have a larger hernia, and those who have a complete hernia, if I may put it in that way; the first class without a truss; the second class with a truss, and the third class we reject. In two months we took 125 men. Seventy-five per cent. of those who applied with hernia we put into the shop, on any kind of work. Some are doing very heavy work. Of those eighty-six remained with us at the end of two months when this material was taken. We have had one whose hernia came down; that required a $5 truss. It costs our company $35 a man to train their men. If they are in our employ at the end of six months we will not operate on them ourselves free of charge, but we will operate on them and the fee will be made according to the family conditions, as to whether the man is in debt, as to whether he is paying for his home, etc. Maybe the company will, if necessary, underwrite those cases and pay the surgeon and the hospital bill, and the money will be deducted from the man's salary at about 10 per cent. of his pay on each pay day. It makes, probably, an average of about $5 a month, and it takes a man in the neighborhood of fourteen months to pay the whole bill. In the intermediate cases, out of the twenty-five we have operated on under this plan, it has cost the company, due to those who have left the company and refused to pay, and various other reasons, $14 a man. It cost $35 to put them in, $14 to keep them, so we consider it is quite a good investment. As to the time required in making a physical examination, since the first of November on stripped examinations made by full time physicians we have examined 12,000 men. Our turn-over is quite large. Of the 12,000 who passed into the shop, four have developed tuberculosis since that time.

DR. C. G. FARNUM, Peoria, Ill.: Some one said that Dr. Mock's paper approaches the Utopian. Possibly, it does, but it is absolutely practical. There is not one single thing that Dr. Mock suggested that cannot be done, and be done easily. One of the reasons it is easy is because he stands so strongly for personal contact with the men. You cannot be doctors alone in this work; you must be sociologists and you will be accused occasionally of being Socialists. There is not one thing that is more valuable in the work that Dr. Mock has done than his personal contact with the men. When these men come to know that they have the privilege and the opportunity to come in and talk with you they will do so not about their hernia, not about their scratched fingers, but with regard to their habits of eating and drinking and sleeping and housing and sanitation and all of those things that come into the daily routine of a man's life. I want to speak particularly of physical examination. I do not care how many legs or hands a man has, if I can put him where I want him in the shop. And, if there is any man who is falling short in the work of placing his men, he has taken but a part of one small step in this work because that is the most valuable thing to the company, and it is the biggest thing to the man. People are writing me constantly "What is your standard of rejections," and I tell them, "We are not running an athletic club nor turnverein; we are running a manufacturing institution." If a man has but one leg, I put him in a one-legged man's job. And if a man has one arm, I do the same thing. When it comes to the matter of eyes, the problem is bigger. It does not matter about the condition of a man if you tell him what is wrong and get him headed right, and put him at work that he can do and do safely. That is what he wants, and that is what he is there for, and that is our obligation to him, and to the company. There is another thing that has not been brought out in the discussions and that is the matter of age, and physical condition and their relation to responsibility and reliability. Where is our labor turn-over coming from? We have worked out some statistics that show that our physically perfect men, and there were not very many of them, were the worst aggregation we have, from the standpoint of labor turn-over. This matter of fitting men to jobs is wonderfully important and the matter of coming intimately in contact with the men is also important. Your position in your department and your work must be absolute; if it is not, then your work is not going to carry. The department of employment, the department of safety, and the medical or sanitary departments are so intricately interwoven, that if you try to separate them, you are going to curtail the most valuable portion of the work of each one of them.

DR. CHARLES J. HASTINGS, Toronto, Ont.: It seems to me that we have been "found asleep at the switch." We have been doing many things that we ought not to have done, and we have left undone many things which we ought to have done, and we are just waking up to it now. I was glad to hear the former speaker refer to the social problems in public health administration. We realize, however, that no organization of public health administration is at all complete without a division of social service and without a division of industrial hygiene. Public health administration at the present time stands for race betterment, for the developing of a fitter race. The control of communicable diseases only constitutes a fractional part of public health administration.

DR. EUGENE L. FISK, New York: The time consumed by the Life Extension Institute in making physical examinations has been mentioned. It should be explained that the history taking is done in advance of that examination. History blanks are filled out by the employee in advance of examination, so that a lot of time is saved. Then the examiner concentrates on the physical examination, and he takes from twenty minutes to half an hour, depending on his training. It is important that we should standardize this work. A very valuable examination can be made in ten minutes, even in five minutes. No reflection whatever should be cast on the great value of the work done by Dr. Clark. His examination was a most valuable one; it brought out most interesting things, but I think that perhaps in the same space of time, other things could be added and a complete physical examination made. For example, the lymphatics are mentioned, the heart, and various organs of the body, but no mention is made of the arterial system or the examination of the radicals and brachials. An examination of these structures, and even the eye-grounds, with modern instruments could be made very quickly, and surely there is no more important part of a man's body than his arteries. There is one fact which is brought out in our service, and that is the unreliability of blood pressure as a guide to the condition of the arterial system. There is a common impression that if a man's blood pressure is normal, his arteries are normal. The majority of individuals with definitely thickened arteries have either normal blood pressure or low blood pressure. I cannot speak too strongly of the possibility of this work in a sociologic way, of the opportunities to teach these men how to live. Like Dr. Farnum, I have been out among these people and I have put my ear down to their naked, sweaty chests. I have tried to carry to them this philosophy of right living. They respond, and they respond more readily and more intelligently than even men in the higher walks of life who are supposed to have more intelligence. They are not so cynical or so skeptical, and you can explain to them the fundamental principle that the human machine needs inspection and care just the same as the inanimate machines that are under their charge.

DR. C. A. LAUFFER, Wilkinsburg, Pa.: For eight years I have been associated with this work in the capacity of medical director. The Westinghouse Electric and Manufacturing Company has a works dispensary, known as the Relief Department, in the East Pittsburgh plant. We are taking care of about 450 patients a day. We treat an average of 110 new traumatic cases each day. I have been extremely interested in these papers because their solutions correspond very closely with the way we have met these same conditions. About one third of our traumatic cases are eye cases; another third fingers; the balance are miscellaneous. It might be well to define under five heads the different types of work which come to the surgeon in individual practice:

First of all is the examination of new employees. We have recently entered this field. We prepared a list of fourteen different classes of conditions in which we think we should reject prospective employees. However, we have taken care of all men who have been in the employ of the company previous to the inauguration of the physical examinations.

The second type of work is surgical cases, chiefly accidents occurring within the plant. We get patients immediately after the accident. We think it is a misfortune to have first aid work preceding the work of the physician. We have surgeons on duty twenty-four hours each day; and we instruct injured men to come to us immediately. The work of the first aid man is generally mischievous; we want to have the patient immediately, while his wound is still bleeding. The third type of work we have to do relates to sickness. All employees who are not feeling well are encouraged to come to us. We give them emergency medical treatment. We send home those employees whose temperature is elevated, also those whose temperature is subnormal. The fourth service of our department is a "diagnostic clearing house." Many of these men, who may be sent to hospitals for herniotomies, or various other operative conditions, are given advice as to the proper procedure. They are referred to specialists in various lines of work. The fifth line of our work is with relation to our relief fund. Employees of our company may pay a certain proportion of their wages to secure disability benefits for periods of disability arising from accidents occurring at home, and in consequence of sickness. We are paying about $15,000 a month out of the relief fund, and it requires much labor to review the diagnoses that are presented to us, and to pass on the statements that are brought to us by the employees, and the certificates which are presented from their attending physicians. Proof of claims for compensation insurance for periods of disability resulting from accidents occurring within the plant must also be adjusted. These are paid out of the company's compensation fund. The field of the surgeon in industrial practice is a wide one. We have entirely too little available time for the stupendous work at our disposal.

Dr. W. H. Lipman, Chicago: Regarding the time for the examination, I believe it would be well to establish a standard for general work, that is, have a standard that can be applied generally, as to what to look for. But I do not believe it is possible to say how much time we should take and how much time we should not take to examine a man. We might want to take forty-five minutes to examine one man and two minutes and a half to examine another. When a man or woman comes in looking anemic, or with a flushed face, one would naturally make a longer examination. I have been doing this work in Chicago for one of the large packing houses for eleven years, at the beginning very superficially, and I am free to admit very inefficiently, but we have gradually developed and finally, after studying the methods which have been in use all over the country and their results, we reject men for just one cause, and nothing else, and that is contagious diseases. When a man presents a case of a contagious disease of short duration, we ask him to call again in a reasonable time, and if he has been cured, or is well, we will accept him, but outside of that we will reject for absolutely nothing. We find a man with a certain defect; we put him to work. Later on we advise him what to do for himself. Industrial medicine and surgery is perhaps attracting more attention than anything else. Some of the papers and some of the discussions have dwelt on the advisability of telling the employer what a fine investment this medical work among their employees is. Some have gone so far as to figure out in dollars and cents just how much money they are going to save by saving the lives of their employees, by reducing pain, by prolonging life and so on. I believe that is a great mistake. In the first place, it is wrong, because nobody can tell us how much a human life is worth, or how much pain and suffering cost. And, second, I believe that the average employer is — if I may use that expression — a mixed culture. It is true he has a very great affinity for the dollar, but I believe that he is a man after all, and I think when he comes to the final issue he is more easily approached when you appeal to his humanity, rather than to his love for the dollar. Furthermore, if you insist on showing him just how much money he is going to make, the time will come when you will not be able to do that, and then if you depend on your work to convince him that he is going to make money, you will lose out in the end.

Dr. Harry E. Mock, Chicago: As to the length of time these physical examinations should take, ten minutes is entirely too short a time for the ordinary physical examination where the history, temperature, pulse, blood pressure, height and weight, eye test, etc., must be taken by the examining physician. But the men actually doing this work are engaged by great industries who demand that their employees be returned to work in as short a time as possible; therefore, it is necessary for the company surgeon to work out very efficient systems, in order to make this examination as rapidly as possible. We have nurses who do the preliminary work of eye test, ear test, pulse, temperature, weight, etc., and then the employee enters a dressing room, strips, and comes before a doctor for his examination. This routine examination can be done in from ten to twelve minutes. If a man is found with a very badly diseased condition, he is sent to the chief of staff for further study, and it may take an hour to complete this examination. But any one engaging in this work will find ten or twelve minutes sufficient time for the routine examinations. The second point is that these examinations are not made for the purpose of throwing out those too old to work, those with slightly diseased conditions, and those with chronic diseases that interfere with only certain types of work, namely heavy work. They are made for the protection of the old working force against contagious diseases and for the protection of the applicant himself if he has a disease that makes work of any kind detrimental to him. Every industry should assume its share of responsibility toward society until the state takes up that burden. We have no right to reject old men, or any one else except those mentioned. There are just two things to reject on, contagious disease that affects your working force, and a very bad heart, or blindness, or some condition that makes it impossible for that man to work for his own good.

Dr. W. Irving Clark, Jr., Worcester, Mass.: The preciseness of my paper was to answer a great many questions which I have had written to me in the last two or three years on our work, and is simply an answer with regard to what we are doing, and how we are trying to do it. We place all our men just as carefully as we can. We would rather have a deaf and dumb man than anybody else. They mind their business, and they never make any trouble. We take all the one-armed men. They are the finest fellows for work, if they can do it, that I know of. If we can find a job for a one-legged man, we will take him. I think it was Dr. Farnum who brought out the question of cooperation; the safety engineering department, the medical department, and the employment department should actively cooperate; they should be in one building and should form a separate department, with these three subdivisions. Dr. Fiske spoke about the completeness of examination and the time required. I would rather take forty-five minutes to make an examination than ten. But, what are you going to do when there are 100 men lined up, and the employment clerk says "We will have to get these men through," and there are more behind them. We must realize that our business is to get men into the factory and to keep them working, if we are factory physicians. We would like to be sociologists, but unfortunately, we have to work in a factory, and there are certain things in a factory that have to be recognized. Time is one of the most important elements in factory work.

Effect of the "Movies" on Eye Muscles.—When looking at a motion picture the pupil is contracted to a somewhat smaller opening than when viewing a still picture having the same illumination, and when the flicker in the motion picture is pronounced, the pupil of the eye can be seen to tremble slightly as if attempting to follow each fluctuation of light. This may lead to overstimulation and permanent injury. One investigator, in writing on this particular phase, concludes by stating that this constant contraction and dilation must gradually strengthen the muscles of the eye and so eventually develop them to the point were strain would not be caused. From this opinion, however, leading ophthalmologists differ, and believe that the fatigue caused by overstimulation due to flicker frequently passes beyond physiologic limits and must eventually produce deterioration.—Gordon L. Berry, *Public Health*, November, 1916.

THE SANITATION OF PUBLIC MARKETS*

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Out of an income of less than $1,000 a year, the average urban family of five in most large American cities has to spend from 40 to 50 per cent. of their income for food. Undoubtedly an important factor contributing to this large percentage is the cost of municipal food handling and distributing, as was indicated by a recent study in New York City, where it was ascertained that about 37 cents out of every consumer's dollar went for the cost of municipal food transportation. Public markets are considered by many an essential factor in combating the high cost of foods resulting from the present individualistic methods of municipal food handling. The past few years have seen many experiments along market lines, either under public, semipublic or private control, either temporary or permanent in character. It would seem that the most effective results might be expected with the highest degree of municipal control, including a regulation of rents, or retail food prices and consequently of profits. Obviously, if a public market is properly situated, it can effect still further economies to the consumer by the elimination of the cost of delivery and the loss resulting from the operation of the stores on a credit basis.

The establishment of public markets, especially when of a temporary and experimental character, introduces into the community life many problems of intimate sanitary and hygienic importance, problems which the public market has in common with the retail store to a large extent. Concentration, however, of retail business in certain areas, possibly under one roof, increases the magnitude of the problem and at the same time enhances the directness and simplicity with which a sanitary control can be established. In any event, whether under private or public auspices, any municipality must meet the responsibility of establishing and maintaining adequate sanitary and hygienic regulations in connection with the city's food distributing system.

Sanitary food control is of interest from several points of view. In the first place, there are the representatives of the municipality, usually the health department officials, who have the responsibility of inspection and law enforcement. Of great significance in this connection are the recent findings of health departments, perhaps especially the New York City department of health, to the effect that intelligent, educational inspection is tremendously more efficient, from the point of view of accomplishing results, than is any amount of uninstructive visiting, legal prosecutions and insignificant fines.

Further, the dealer himself is intimately concerned in sanitary law compliance. It is essential that he should be made to realize the economic importance of sanitary food protection and waste prevention, in addition to the health hazards of careless food infection.

Finally, there is the consumer, the purchaser, who is interested in food protection and desires food protection, aroused to the necessity by motives of disease prevention, cleanliness, decency, and estheticism.

From whatever point of view the problem is approached, however, those interested soon realize that the special problems of market sanitation are, in the main, three in number. In the first place, because of the perishability of ordinary food products, and because of the risks of disease transmission, there are dangers of contamination and possible infection, by means of dust, dirt, flies and dirty fingers. It is certainly conceivable that tuberculosis, typhoid fever and other diseases may be, and perhaps frequently are, transmitted in this way. Further, there are the special dangers of decomposition, the rare development of genuine ptomains, the more frequent pathologic bacterial infections, etc. Finally, there must be mentioned the comparatively insignificant hazards resulting from adulterated or preserved foods, a problem in fraud prevention largely of economic, rather than of sanitary, significance. Such a classification does not, of course, include certain other possibilities, such as the presence of natural poisons, as in mushrooms; the presence of animal parasites, as in pork; the development of a specific poison, such as solanin in potato sprouts; and special individual idiosyncrasies, as pathologic reaction to egg protein. It ignores entirely what would seem to be the most important food factor in health conservation, namely, proper dietary food selection, a factor of hygienic rather than of sanitary importance and one which is, therefore, not apropos at this point in the discussion.

To confine the discussion largely to the sanitary aspects, it might, perhaps, for the sake of clearness, be best to adopt a rough classification of the major points in market sanitary control and to discuss these very briefly under the following headings:

PRODUCTS AND THEIR CARE; LABORATORY CONTROL

Chemical Analyses.—It is, of course, possible nowadays to find in most large cities adequate facilities for the chemical study of foods offered for sale in municipal markets, and therefore, more or less under municipal guarantee. Such analyses should be made to detect illegal adulterants or preservatives and to insure protection against the sale of deteriorated or decomposed products.

Bacteriologic Analyses.—Routine procedures of this kind are, of course, essential if milk and dairy products are permitted to be handled in the market. Bacteriologic analyses to detect contamination of foods from various sources may, from time to time, be worth while. Consequently the necessity for municipal equipment to meet demands in this field should be recognized when market plans are being developed.

Calorific Analyses.—This is the type of analysis and check which cities will have to recognize in the future. Eventually governmental authority will have to take the responsibility for food standardization, and if this standardization is to be on a rational basis, calorific values will have to be employed. Further, if the purchaser is ever to be educated to the extent that she can buy her food supply on an intelligent food value basis, there will have to be mechanism for routine, calorific food analyses. In the present state of development an equipment of this kind cannot, of course, be considered a prerequisite to a market establishment. At the same time, its need should be emphasized, so that in the future it may become an essential part of municipal market control. Again, it must be pointed out that this is, of course, of hygienic rather than of sanitary importance.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

THE STAFF

Living Wage.—As Dr. Gorgas has recently emphasized, essential to the hygienic welfare of the worker is a sound, economic status. It means for the industry a higher degree of intelligence and cooperation from the employees, factors which are essential in the enforcement of the rules of personal hygiene. This is perhaps of greater significance in food handling establishments than in almost any other industry.

Selection of Healthy Employees.—This is of the greatest importance in food industries, if we are to avoid a constant succession of "Typhoid Mary" catastrophes. Modern health departments are requiring that food handlers be free from communicable disease. The proper place to inaugurate a check is at the beginning of the period of employment. This can be done only by an initial medical examination resulting in the selection of healthy employees.

Periodic Medical Examinations.—This is now being required by modern health departments for the detection of disease carriers or individuals suffering from communicable diseases. Here, of course, municipal laboratory equipment is essential for the conduction of Widal and Wassermann tests, the examination of sputums and throat cultures, the bacteriologic study of excreta, etc. These requirements are, of course, applicable to small retail food establishments and, indeed, to restaurants, boarding houses, hotels, etc. On the other hand, the city, if it maintains municipal markets, has a special obligation for guaranteeing that the food products under its control shall be handled by individuals free from communicable disease.

EQUIPMENT AND METHODS

In this field the details are numerous and it is impossible in this paper to discuss them at all fully. The major points might be enumerated as follows:

It is absolutely essential that there be adequate and sanitary toilet and handwashing facilities for the market and stall employees. Hot water, individual towels, and soap from a holder, are essential. Toilets should be equipped with automatic flushes, so as to avoid a series of constant contacts. Washing facilities should be readily accessible in conjunction with toilet facilities.

Food should be protected from animal contamination by at least a 2-foot elevation from the floor.

Receptacles with covers should be provided for rubbish and garbage, satisfactory arrangements being made for emptying and cleaning, and the rules of the market should prohibit the cleaning of fowl, the accumulation of refuse, etc.

Adequate refrigeration is essential. This applies to storage refrigeration facilities in conjunction with the market, and to special refrigeration for local stall ice-boxes, or for enclosed display cases. The proper draining of ice-boxes, especially in case ice is used for refrigeration, is required by practically all market codes.

The laws regarding spitting should be strictly enforced.

Most municipal ordinances require that food establishments should be properly screened from flies during the fly season. In addition, it is usually required, to quote the sanitary code of New York City, that "no food intended for human consumption should be kept, sold, offered for sale, displayed or transported unless protected from dust, dirt, flies and other contamination." This is usually interpreted to apply particularly to foods eaten without being cooked or peeled.

Efficient janitorial service, with an arrangement with the stall occupants for cleaning, is necessary if decency is to be maintained.

Public markets, particularly when under municipal control, should take advantage of every opportunity, by the use of placards, leaflets, etc., for the education of the public regarding the dangers of food infection as a result of unnecessary handling, the risk in promiscuous coughing and sneezing, etc.

THE BUILDING

Adequate light and ventilation are not only necessary for the physical welfare of the employees, but are tremendous instruments in the maintenance of cleanliness and in increasing the commercial attractiveness of the market.

Floors should be impervious, waterproof, properly drained, and maintained in cleanly condition.

A plentiful water supply for flushing and other general purposes is absolutely necessary to market operation. Incidentally, in this connection, drinking fountains should be provided for employees and patrons.

ADMINISTRATIVE CONTROL

It would seem, judging from experience in many American and foreign cities, that a concentration of authority and responsibility is an asset in the operation of municipal markets. This implies the establishment of a market department or at least of a market division in an existing department. The necessity for coordination in this field is most strikingly illustrated by the administrative situation arising subsequent to the establishment of the temporary curb markets in New York City a year or more ago. While these markets were established by the borough president's office, on street area under the control of that office, a superficial survey of the diffusion of responsibility indicated that in addition to the borough president's office there were also concerned, from diverse points of view, the department of health, the department of street cleaning, the department of water supply, the department of docks and ferries, the bureau of licenses and the department of police. Certainly if New York City is to take further steps in the direction of municipal market development, a concentration of authority is essential. From the point of view of sanitary control, there can be no doubt that responsibility should rest with one office, rather than be distributed as was the case in New York City, where the health department inspectors were supposed to enforce the rule regarding food protection, the street cleaning department provided janitorial service of a kind, the borough president's office was responsible for cleanliness as regards the toilet facilities, etc.

Historically, most cities attempting to deal with the necessity for municipal retail markets have paid some attention to the economic aspects of the situation, have attempted to control prices in a greater or less degree, but have, to a large extent, ignored the necessities for special sanitary regulations and particularly for specific education measures in food hygiene. The markets of Philadelphia and Baltimore, while attractive structures, and while apparently serving a useful purpose, by no means take full advantage of the opportunities for food control and food education. In this field, so far as the observations of the author are concerned,

the city of Cleveland is unique. The Euclid Avenue Market in Cleveland, in addition to being a model establishment from the point of view of construction, light, ventilation, refrigeration, food protection, and toilet and hand washing facilities, has taken advantage of many opportunities for educating the consumer along lines of food sanitation. Of course even in this market much remains that could be done in increasing popular knowledge regarding food selection, the economies of food purchasing, and the essentials of food care in the home.

In conclusion, it cannot be too forcibly emphasized that in modern public health work, and particularly in the field of food sanitation, we are at the point where we are ready to drop the word "public" and to talk primarily about health. Paradoxical as it may be, the keynote of modern sanitation, and especially food sanitation, is personal hygiene. This means personal cleanliness. From the point of view of disease prevention it is undoubtedly of much greater importance for any city to teach its food handlers to wash their hands before they eat than it is for that city to solve its sewage disposal problem, even though it may maintain an indecent and unesthetic crude disposal by river dilution. From a health point of view public market control, while it must be founded on a sound, sanitary basis, is to be effected essentially through a program of personal hygiene. If eventually municipalities would meet the responsibility of having this program of personal food hygiene include, not only the infection preventive and disease suppressive factors of food protection, but also the positive, health creative, educational factors of dietary food selection, the public markets would then be utilized in something like their full potentiality as creative, social forces.

ABSTRACT OF DISCUSSION

DR. J. N. HURTY, Indianapolis: The doctor is right in laying emphasis on the fact of personal cleanliness of the food handler. One of the best regulations that could be enacted would be to require that food handlers restrain themselves from introducing their fingers into any of the body cavities. In this city, and in other cities, too, I have noticed that food handlers in the dairy lunches, for instance, are very prone to introduce their fingers into their noses and into their ears and into their mouths and then handle food with the same unwashed fingers. The possibility of disease transmission in such instance is very great, and the habit is repulsive and repugnant. In Indiana, and especially in Indianapolis, we have spread the propaganda among the food handlers, especially in restaurants and in hotels, that waiters must be instructed to keep their fingers out of their body cavities. We had a very severe outbreak of typhoid fever last fall at Lake Wawasee. All the typhoid fever at this lake occurred at one hotel. The disposal of sewage was not ideal, but was passably good. Bath water was pumped from the lake not very far from the bathing place, but the tank was never filled, except at night time when there was no bathing going on. The whole outbreak was attributable to a single handler of food, a woman, who was a typhoid carrier. Very shortly after her appearance, within twenty days, typhoid commenced to appear. She handled the salads and the pastries.

DR. JOHN DILL ROBERTSON, Chicago: Dr. Armstrong speaks of personal hygiene. This is very important and one of the oldest sanitary teachings. Moses was one of the world's first and greatest sanitarians and he laid especial emphasis on personal hygiene. He made it a fundamental rule that no man could offer up a prayer to God until he had washed his hands. This must have been a custom of the Egyptians from whom Moses received his education and training. This world-old sanitary teaching is no less important today. In oyster contamination we have the dirty hands of the oyster shucker; in milk contamination, the dirty hands of a milkman, and so all along the line of food handling.

DR. HAROLD B. WOOD, Charleston, W. Va.: The educational standpoint is the main one on which to develop the food question. It is very largely a waste of effort if men are sent into grocery stores and other food establishments to make inspection, if the health officer does not go further back and take up the question with the producer, and with the general public. The general public, of course, can be reached most effectively through the newspapers, which in their progressiveness and their high ideas, are always willing to assist the health officer in instructing the public along these lines. The general public should be instructed in what constitutes poor food, what constitutes good canned foods and what swelled cans mean. The grocer should not simply be told to send the foods back to the original man, but the canner should be instructed how he can produce better foods. Many swelled cans are being sent from one state to another. The health authorities of the states should take it up with the canners and teach them that there need be no waste in canned foods if a little more sugar, or, the proper amount of sugar, and the proper amount of heat for sterilization are used. Canning clubs are being established throughout the country, and these need public support because they are the educational part in the canning industry of the future. But they need supervision, they need sanitary inspection just as much as any other school, and if they are permitted to send out canned foods which spoil before they reach the consumer, as they do in many cases, then the consumer and the general public will turn a deaf ear to the canning clubs and mark them as failures. The cooperation that should be urged on the general manufacturer is the labeling of canned foods.

DR. MARY DUNNING ROSE, New York: I visited one of the automobile factories here. The noon hour came and the food was delivered to the employees in sanitary receptacles, individual sanitary paper maché or paper boxes and cups. Farther on we saw men eating with hands filthy black. Not one man had made any attempt to wash his hands. Then we passed a number of stationary wash basins but not a towel was visible and the basins were dry. If they are not teaching factory workers the necessity of washing their hands before they eat, what hope can we have out in the field work to educate the public that they must wash their hands before eating? As to the examining of food handlers, we make a Widal test on a servant either in our homes or in our institutions. We find it positive. That person is a wage earner of the family, she or he is a menace to the community, and must be isolated if the community is to be safeguarded. What are we to do with the dependents? If we find them tuberculous we must isolate them. I cannot but feel that the way we have dealt with tuberculosis, allowing the consumptive to go free in the community, infecting more and more people, is not intelligent or sensible. They should be isolated the same as we isolate smallpox patients. The paper urged the examining of our food handlers, but it gave no means to take care of them and to safeguard the community. This phase of the problem is important whether it means state insurance for the family, as well as for the sick individual, or federal insurance.

DR. W. W. TOMPKINS, Charleston, W. Va.: I want to say in reply to Dr. Robertson that if we again quote Scripture and from the New Testament we are told that to eat with unwashed hands defileth not a man, it is the things that proceed from the heart, from within, that defileth him. In this age in which we are now living we must confine ourselves more to modern bacteriologic teaching than quotations from Moses or a greater than Moses in the discussion of modern sanitation.

DR. CHARLES J. HASTINGS, Toronto, Ont.: Might I ask a question? How do they determine in New York whether a handler of food is a carrier, or suffering from a mild form of some communicable disease? Does the department of health take the responsibility and bear the expenses of the examination, or do they accept a certificate from the family physician, or the physician employed by the employer of the laborer? Those suffering from the milder forms of com-

municable disease or carrier can get employment that would be perfectly safe, in which they would not be a source of danger; but they should not be employed as handlers of food. That might probably be a compromise to help out.

Dr. Robert T. Legge, Berkeley, Calif.: I understand that in Chicago the food handlers who are employed in some of the large hotels must have satisfactory medical examinations and certificates from the medical men; that the food handlers must be free from communicable diseases and open tuberculous and syphilitic lesions. The health commissioner will accept these certificates. If we intend to prevent all syphilitic persons from handling food, we would have to deny, I should say, about 50 per cent. of the population. It is only the persons with open cases of not only syphilis but tuberculosis who should be denied the privilege of handling foods.

A REPORT OF AN UNUSUAL CASE OF CEREBRAL MALARIA

OTTO T. BROSIUS, M.D.
PANAMA, R. P.

In view of the epidemic of anterior poliomyelitis in New York, and the constant travel between that metropolis and Panama, the case here reported is of unusual interest from a diagnostic standpoint because of the several exceptional characteristics it presented.

The health authorities of the city of Panama first discovered the case and sent the patient, a girl aged 11 years, into Santo Tomas Hospital for diagnosis and treatment. Accompanying the patient's admission, a history of illness for two days was given which began Sept. 9, 1916, with malaise, headache and chills, and continued with high fever. The following day the patient had two convulsions; paralysis of the right side of the body became evident, and she neither spoke nor took any nourishment. Communication with any one arriving recently from the United States was denied by the family. At the time of onset of the illness the patient was living in Panama, but she had moved into this city, Aug. 25, 1916, only sixteen days before the onset of the illness, from the town of Arrajan in the Republic of Panama. While there, the family stated, she had several times been stricken with prolonged and intermittent fever and chills.

On the second day of the illness a blood smear was sent to the laboratory of this hospital by the health officer of the city of Panama, and the pathologist reported the presence of crescents and many ring forms of mostly the estivo-autumnal parasite; but a few of them showed tertian characteristics. Therefore, before sending the patient to the hospital, the attending physician in the city administered 7½ grains of quinin hydrochlorid intramuscularly.

The patient was admitted to Dr. Preciado's service, Santo Tomas Hospital, Sept. 11, 1916, at 11 a. m., with a temperature of 38 C. (100.4 F.), which that same evening rose to 39.8 C. (103.6 F.). She was fairly well developed, but rather undernourished, and of about normal size for her age. She lay on her back with the head a little retracted, her eyes rolling upward, and could not be induced to speak, being in a state of semiconsciousness. As much of her family history as could be obtained was negative, and contained nothing of importance.

Physical examination revealed the head, scalp, ears, mastoid regions and nose negative. The pupils were equal and reacted to light, and were neither dilated nor contracted. The neck was found to be quite rigid, and the patient uttered a faint cry when one attempted to bend the neck a little.

There were no glandular enlargements. The jaws were not rigid and the teeth seemed negative, but the tongue bore a brownish coat.

The skin was clean. There were present neither jaundice, eruption nor discoloration.

The lungs were negative; there was no cough, and the respirations were even, normal in rate, and were not labored.

The heart was negative and the pulsations at the wrists were good.

The abdomen likewise was negative, and the spleen not palpable.

The reflexes were absent at the knees.

Kernig's sign of the left side was positive.

The right arm and leg showed apparent absolute flaccid paralysis, there was not the slightest motion in either right limb, and when dropped each fell flaccidly as if paralyzed, but there was no difference in temperature between the limbs of the two sides. The face gave no signs of paralysis; both sides moved symmetrically.

A blood smear was now taken which showed crescents and a very few ring forms, some of which, I believe, were tertian parasites because of the increased size of the erythrocytes, and the more or less characteristic features of the organism,

A lumbar puncture was done next. The fluid was found not to be under pressure, and was absolutely clear. The cell count showed 5 to the cubic millimeter. The pathologist gave a report negative for organisms.

On admission, 2 grains of calomel, followed by 1½ ounces of magnesium sulphate and 10 grains of quinin were given by mouth. Four 10-grain doses of quinin were administered daily for the first three days, and after that the quinin was reduced to 10 grains three times a day until discharge.

September 12, the second day in the hospital, the patient's temperature dropped rapidly from 38.8 C. (101.8 F.) to 36.8 C. (98.2 F.), and remained subnormal for sixteen hours. To our surprise the supposed hemiplegia had disappeared, though the limbs affected were still quite weak, and the child seemed brighter. In the afternoon the student nurse reported two slight convulsions, which she described as clonic. Accordingly, bromids were given.

At this time the urine and stool examination yielded negative results.

The white blood count was 12,800.

DIFFERENTIAL WHITE BLOOD COUNT

	Per Cent.
Polymorphonuclear neutrophilic leukocytes	70
Polymorphonuclear eosinophilic leukocytes	0
Transitional leukocytes	1.5
Mast cells	0.5
Large mononuclear leukocytes	3.5
Lymphocytes, large and small	24.5

During this count of 200 cells, only one crescent and one estivo-autumnal ring were found. Erythroblasts, achromia, polychromatophilia, poikilocytosis, anisocytosis, and basic stippling were not present.

The hemoglobin was 68 per cent., and the red blood count 4,240,000, making a color index of about 0.81 plus.

While the blood was being taken for examination, a tendency to coagulate with unusual rapidity was noted.

September 13, the patient's third day in the hospital, there was a rise of the temperature to 37.6 C. (99.7 F.), which soon dropped again to subnormal and remained there during the remainder of her stay in the hospital.

Because the neck still remained rigid, another lumbar puncture was done, but it likewise yielded negative results. The right limbs had acquired more power, and the patient showed marked improvement.

September 14 and thereafter there was almost absolute improvement. The child became bright and talkative; the temperature remained normal; the pulse became slower, and normal strength was regained in the limbs once thought to be paralyzed. Another urine, stool and blood smear examination gave negative results.

According to Manson, cerebral malaria was at first supposed to have been caused by the malarial pigment, which formed thrombi in the cerebral veins; but later investigation gave emboli formed by the parasites as the etiologic factor in this condition. Accepting this explanation, it seems rather unusual that these should have occurred only on the left side in this case.

The prognosis is of course very good for this attack, but experience teaches us that patients harboring the

gametes within their blood are always subjected to repeated subsequent attacks of the disease. Tremendous doses of quinin have been unsuccessfully given in this hospital with an attempt to destroy these sexual forms, and even salvarsan has failed to produce the desired result.

Santo Tomas Hospital.

DISINFECTION OF WAR WOUNDS BY THE CARREL METHOD

AS CARRIED OUT IN AN AMBULANCE AT THE FRONT *

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NEW YORK

The Carrel method of disinfecting wounds is based on the following conception: To render an infected wound sterile it is necessary to employ a suitable antiseptic in such a manner that the chosen antiseptic comes into contact with every portion of the wound, that the antiseptic is maintained in a suitable concentration throughout the entire wound, and that this constant strength is maintained for a prolonged period. If these conditions are fulfilled, every wound will show its response to the treatment by the diminution and disappearance of its micro-organisms.

The chemical destruction of the micro-organisms of a wound depends on the difference of resistance existing between the tissues involved and the bacteria present on their surfaces. Practically every surgeon will acknowledge the fact that the usual routine applica-

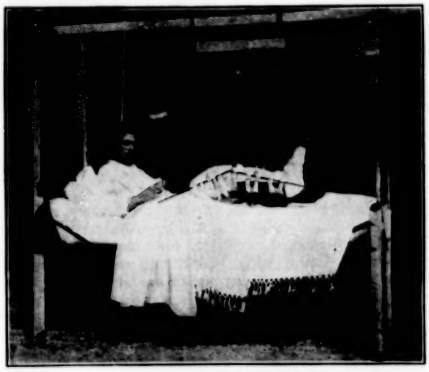

Fig. 1.—Balanced suspension treatment, with method of conveying Dakin's solution to the distributing tubes. It is comfortable, and greatly simplifies the dressings.

tion of powerful antiseptics will not sterilize an infected wound. "The success of the Carrel method which enables us today to make an infected wound sterile is not due to any miraculous properties of any new drug. It must be attributed to a combination of processes which permit the employment of antiseptic substances determined under such conditions of concen-

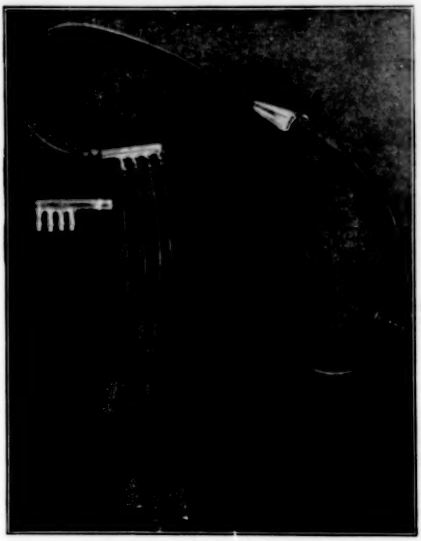

Fig. 2.—*A*, rubber instillation tubes with ends tied, and lateral perforation, size 18, French, attached to a four-way glass connection; *B*, glass drop-by-drop connection; *C*, adjustable clamp for controlling the flow.

tration and of duration that their action becomes efficacious. These processes constitute a method in which all the details are interdependent. It would be impossible to alter the antiseptic without changing its mode of employment. Equally, a modification in the technic would demand an antiseptic endowed with different properties."

The antiseptic employed is Dakin's sodium hypochlorite, 0.5 per cent. It is an ideal isotonic wound antiseptic of high bacterial activity and low toxic or irritating quality. The latter feature distinguishes it from Javelle water, Labarraque's solution, etc. The hypochlorites of commerce are of inconstant composition and generally contain free alkali or free chlorin. Such substances are irritating, and when used in moderate concentration may produce very unfavorable results. In addition to being a strong wound bactericide, Dakin's solution, because of its pyocytohemolytic powers, has the great clinical advantage of being able to dissolve pus, old blood clots, tissue débris, etc. The living tissues resist this dissolution, owing to the protection afforded them by the sodium chlorid of the serum.

OPERATIVE TECHNIC TO PREPARE THE WOUND FOR THE INTRODUCTION OF THE ANTISEPTIC

The future course of the wound is directly dependent on the thoroughness of the first surgical act. This should be carried out under the strictest aseptic precautions and at the earliest possible moment. It

* Read before the Surgical Section of the New York Academy of Medicine, Oct. 6, 1916, the paper being illustrated by colored photographs (Lumière) showing the wounds and their progress.

* A rather full description of the method of preparing Dakin's solution has been omitted, since a similar description was recently published in THE JOURNAL. It will appear in the author's reprints.

consists of a thorough, methodical, mechanical disinfection of the wound with the extraction of all shell fragments, particles of clothing, dirt, etc.

The operative field is painted with tincture of iodin, and the bruised and necrotic skin edges of the wound are trimmed away with a sharp knife. The knife and forceps are then put aside. With new instruments the

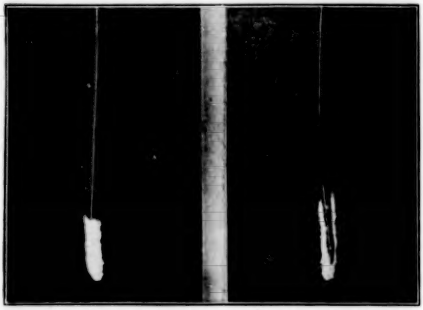

Fig. 3.—Perforated tube tied at end and dressed with toweling; on right, portion of toweling cut away to show lateral perforation.

wound is laid open like a book and gently explored for shell fragments, pieces of clothing, pockets, etc. Everything that could have been infected by the traumatism, or could become the source of infection, is removed. All noninfected tissues, and tissues unlikely to become infected, are preserved.

Gentleness of manipulation is the keystone of the technic. Brutalization of the traumatized tissue is a technical crime. In many of the cases it will be found that fibers of clothing, dirt, grass, etc., are

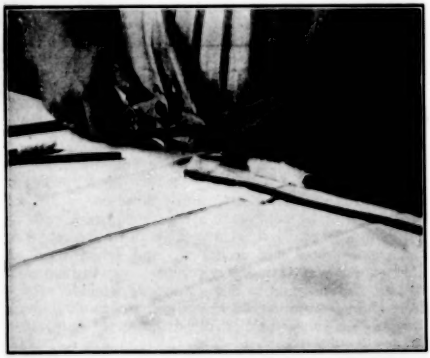

Fig. 4.—Punching of the lateral holes in the instillation tubes, and the prepared dressed tubes.

encrusted in the muscular surfaces of the wounds. To avoid overlooking this blood-stained débris, the tract of the projectile must be lightly but methodically resected. Great conservatism is exercised in the removal of comminuted fragments of bone. The same minute and careful mechanical cleansing is carried out in osseous wounds as in the soft parts. Before placing the instillation tubes a careful revision of the wound is made, and particular attention paid to securing a perfect hemostasis. Muscular tissue infiltrated with blood is difficult to disinfect. There is another reason special to the employment of Dakin's solution which calls for a thorough hemostasis. Owing to its hemolytic property, Dakin's solution has the power of dissolving recent blood clots. A poor hemostasis invites the danger of a secondary hemorrhage.

Counter openings for drainage are rarely employed. If the necessity for their use should arise, one should avoid making them at the most dependent point, as the goal of technic is to keep the liquid in contact with all the surfaces of the wound.

THE INTRODUCTION OF THE INSTILLATION TUBES

The guiding principle is to place the tubes so that the liquid will come into contact with every portion of the wound. The placing of the tubes will vary with the nature of the wound.

Superficial Wounds.—A thin layer of gauze is placed over the wound, and on this the requisite number of instillation tubes. The tubes are secured to the wound edges by a rubber cuff and suture, or a two-way-flow tube (Fig. 5) is used. If the tubes are placed directly on the surface they become encrusted, and the orifices are blocked with granulations. Too thick a layer of gauze should not be used, as it will become clogged with the wound secretions and prevent the solution from reaching the wound.

Fig. 5.—Perforated two-way-flow tube, with connecting tube and rubber cuffs for suturing to the edge of the wound.

Penetrating Wounds.—In the simple type, a tube without lateral perforations is introduced to the depth of the cavity and the solution allowed to well up from the bottom. In a large tract terminating in a cavity with irregular collapsible walls, a little gauze is introduced to support the walls of the cavity and allow a more thorough penetration of the fluid. Penetrating wounds with the point of entrance in a dependent position (as the buttock, posterior surface of the extremities, and the back) are treated with perforated tubes dressed with toweling (Fig. 3). These dressed tubes keep the antiseptic in contact with the wound. A suitable nonperforated tube can also be used.

Through and Through Wounds.—A perforated tube with the tied extremity uppermost is passed from the lower to the upper wound. The liquid, escaping through the small lateral holes, flows back along the tract to the inferior orifice, moistening the entire wound.

Wounds of the hand or foot, open amputation stumps, etc., are immersed in Dakin's solution for from ten to fifteen minutes every two hours until the wound is sterilized. The skin is protected by smearing it with sterile yellow petrolatum.

THE AFTER-CARE OF THE WOUNDS

The materials used are described above. In the care of the wounds a strict instrumental technic is employed, the gloved hands never coming in contact with the wounds or dressings.

Fig. 6.—Large shell wound of the buttock, exposing the sacrosciatic notch. The necrotic edges and the surface of the muscles have been resected, and the wound is now ready for the placing of the instillation tubes. Gauze impregnated with yellow petrolatum protects the skin.

Instillations of the fluid are made every two hours by releasing the adjustable clamp (Fig. 2 *C*) controlling the flow. The amount of solution employed varies with the nature and extent of the wound; for the average wound, 10 c.c. are sufficient. This interrupted instillation is kept up until the wound is proved sterile. The tubes are then removed and a compress moistened with Dakin's solution is applied. Formerly a continuous instillation was the method of choice; if used at all it should be discontinued in from twenty-four to forty-eight hours. The rate of instillation is from 5 to 20 drops a minute, according to conditions. The object is to moisten the wound surfaces and not flood the bed.

Once a day, oftener if necessary, the wound, the tubes, and the flow of the liquid are inspected. Flushing the wound shows if the solution is being delivered as planned, and mechanically washes away the excess of wound secretion.

The Carrel method is not a continuous irrigation. It is a mechanical attempt to deliver an antiseptic of definite chemical concentration to every portion of a surgically prepared wound and to insure its constant contact for a prolonged period.

PROTECTION OF THE SKIN

In order to protect the skin from the liquid which may accumulate in the dependent portion of the dressing, gauze impregnated with yellow petrolatum is applied to the skin surfaces below the wound (Fig. 6).

BACTERIOLOGIC CONTROL OF THE WOUND

This consists in a regular determination of the number of microbes on the wound surfaces. This is done by transferring with a standard loop a portion of the secretion to a slide and counting the number of microbes per microscopic field. This is carried out every second day, and the results are entered on a suitable chart. When the microbes are absent from the wound on three successive days, the wound is considered sterile. Though not absolute, the bacteriologic control is of great practical value as a therapeutic guide:

The determination of the cellular elements of the exudate, if taken along with the bacteriologic control, gives valuable information. For the first six days the exudate is essentially composed of polynuclears and enormous numbers of bacteria. Toward the sixth day the polynuclears tend to disappear and are replaced little by little by the mononuclears. At the same time the bacteria are diminishing. After the tenth day the macrophages appear, and only a few bacteria are found incorporated in the phagocytes. The appearance of the macrophages in the exudate is a favorable sign, being a forerunner of the approaching asepsis.[1]

A bacteriologic examination of the wound on the entrance of the patient to the hospital is, as a rule, negative. The charting of this finding would give a false impression because the germs are undoubtedly present, but the difficulty is in securing a smear from the infected area. It is better to begin the bacterial chart one or two days after the reception of the patient. As a rule the germs begin to appear after the ninth or tenth hour. There is an initial rise on the second or third day. This remains so for a few days, and then the descent begins. Wounds of the soft parts are sterilized in from five to eight days. Greatly traumatized wounds require a longer time. Fractures can be sterilized in from two to four weeks. If sequestrums are present, they must be removed to obtain an asepsis.

Wounds sterilized by the Carrel method are readily reinfected if the treatment is stopped.

Reunion of Wound.—When, on three succesive days, the bacteriologic control shows the wound to be sterile, it is closed by careful layer sutures. In the favorable cases this can be done on the fifth day. The average time for the soft parts is from seven to nine days.

Fig. 7.—Shell wound of the soft parts of the leg with extensive loss of skin. All the traumatized tissue has been resected, and the wound treated by the Carrel method.

In cases in which sutures cannot be employed, the wounds are closed by adhesive straps passed in such a way that, besides pulling the edges of the wound together, they make a compression around the whole circumference of the limb.

For extensive wounds two Canton flannel bands are prepared, the length to be slightly longer than the

1. Depâge, A.: Du controle bactériologique comme indication de la suture des plaies de guerre, Bull. et mém. Soc. de chir. de Paris, 1916, **42**, 1987.

wound, the breadth to be a little less than half the circumference of the limb. On the hemmed edges, shoe hooks are inserted every 2 cm. The limbs are painted up to the edges of the wound with a resin, varnished, and the woolly side of the Canton flannel applied. One should wait until the traction strips are firmly adherent before lacing them with rubber bands. The tension of the rubber bands rapidly draws the wound edges together.

Fig. 8. — Secondary sutures; result fourteen days later.

Wound Healing.—The wounds treated by the Carrel technic are entirely different in appearance from those treated by the ordinary methods. The Carrel wounds have strikingly bright red vivacious granulations, a minimum amount of mucoid-looking secretion, and no odor. There are no redness, no tenderness, no induration in the skin edges. The wounds heal with the minimum amount of connective tissue, the scars are supple, the wound edges pliable, and epithelial growth is rapid.

RESULTS

In the early months of 1915 I was in charge of Hospital B, American Ambulance. This hospital contained 150 beds, and was situated at Juilly, Seine et Marne, 40 miles behind the firing line. The wounded were brought from Compiègne in automobile ambulances, arriving in Juilly about twenty-four hours after being wounded. This year my experience was gained while surgeon in chief of an ambulance situated 3½ miles behind the firing line.

At Hospital B the following procedure was immediately carried out:

1. Careful examination of the soldier's clothes to determine the absence or presence of clothing in the wounds.

2. Examination and dressing of the wound.

3. Localization by Roentgen ray of all bullets, shell fragments, etc., and their immediate extraction. The after-treatment was according to accepted surgical principles. We were well satisfied with the results obtained, as they compared favorably with those of similar hospitals. Today we should consider them failures. We had the usual number of pussing wounds, pyocyaneous infections, secondary abscesses, osteomyelitis, joint complications, amputations for infection, delayed healings, etc., along with the worries and uncertainties which are incident to such cases.

For the first ten days at the front we followed the old standard methods and the newer physiologic ones. Meanwhile we were tentatively trying out the Carrel method. At the end of this time the contrast in the results were so striking that we adopted the Carrel method for the hospital.

Our experience was that of Depage[1]: "The transformation which was established in our results was startling. The immediate complications became more and more rare, and suppuration disappeared from our services almost completely." In our service during four and a half months no secondary abscess developed, there was only one case of osteomyelitis, and this responded readily to treatment. There were no amputations for infection. The average stay for wounds of soft parts was fourteen days, for compound fractures from twenty-eight to thirty-six days.

The wounds treated were almost exclusively inflicted by high explosive shells, shrapnel, trench torpedoes, bombs, hand grenades, etc. Very few bullet wounds were received.

Depage[1] reported his results obtained at the Ambulance de la Panne from June 1 to August as 137 cases sutured, complete union in 112, partial union in 23, failure in 2 cases. These figures include 6 wounds of the knee, 12 amputation stumps, 17 fractures, and 102 wounds of the soft parts. On the date of August 2, Depage had eighty compound fractures without a drop of pus. In August the Ambulance Carrel[2] had closed 450 wounds with only six failures.

SUMMARY

The Carrel method is not a continuous irrigation. It is not dependent on the miraculous power of an antiseptic, or on any one feature of the method, but on the combination of the whole. It is a method of sterilizing wounds by mechanically delivering an antiseptic of definite chemical concentration to every portion of a surgically prepared wound and insuring its constant contact for a prolonged period. The progress of the sterilization is rigorously controlled by the microscope. Gentleness, thoroughness, and attention to detail are essential for success. I firmly believe that the adoption of this method is destined to save many lives, to reduce the gravity of the mutilations, and allow the rapid return to the front of many men who would otherwise be lost to the service of their country.

Fig. 9.—Extensive gunshot wound of chest; comminuted fracture of ribs; hemothorax. Sterilized in twelve days; sutured; completely closed in eighteen days.

50 East Fifty-Third Street.

2. Carrel, A.: Personal communication to the author.

Intellectual Ignorance.—Ignorance, which in all matters of morals extenuates the crime, is itself, in intellectual matters, a crime of the first order.—Joubert.

BISMUTH POISONING FOLLOWING BISMUTH PASTE INJECTION

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In 1912, when Mayer and Baehr[1] reviewed the literature of bismuth intoxication following the local application of bismuth to granulating surfaces, they collected reports of sixty-four cases of poisoning with

Bismuth deposit on margin of gum adjacent to teeth.

twenty-four fatalities. Since that time there have been four cases of bismuth poisoning reported with two deaths.

The fact that there have been so few cases reported in the last few years, although the bismuth treatment has been used extensively, may indicate that, with improved technic and greater care in its use, the occurrence of this complication has become rare, or else instances of mild intoxication have not been recognized.

Dr. Beck[2] says, "The occurrence of this accident has deterred many surgeons from employing the bismuth treatment, and since poisoning can be avoided, it would be deplorable that an otherwise useful method should not be employed on this account." That toxic results cannot be entirely avoided is shown by Beck's admission[3] that in 30 per cent. of his cases there has been pigmentation of the gums. The report of sixty-eight cases with twenty-six fatalities serves to show the existence of individuals who have an idiosyncrasy against bismuth and are susceptible to its absorption with toxic effects.

In the case described below, the precautions and technic in the injection of the bismuth paste as advised by Dr. Beck were carefully observed and yet poisoning followed, indicating the unmistakable action of bismuth on a susceptible individual.

REPORT OF CASE

F. D., man, aged 22, had been well up to Jan. 10, 1916, when he developed an abscess of the left thigh above the knee. This was opened at the Cook County Hospital and the patient went home, returning in about eight weeks with an abscess of the left hip. This was opened, April 19, pus evacuated, and a drainage tube inserted. The sinus discharged for about three months. July 18, 2½ ounces of bismuth paste were injected into the sinus. There was no discharge and the patient went home to see some friends six days later.

On the eighth day following the injection, the patient returned to the hospital complaining of soreness of gums and tongue. Examination of the mouth revealed a line of bluish-black pigmentation about 2 to 3 mm. in width along the border of the gum adjacent to the teeth of the upper and lower maxillae. The tongue was swollen, and the pigmentation extended along the under surface of the tongue following the course of the ranine veins. On the buccal mucosa, most marked on the right side, were discrete as well as confluent spots of a similar character. The glossitis and gingivitis became more severe, and the salivation was so pronounced that the patient lay with his mouth over a basin to catch the flow of saliva. He also complained of diarrhea and weakness, but his general condition appeared good. The temperature was normal, and examination of the blood was negative. Urinalysis revealed a heavy cloud of albumin and many granular and hyaline casts.

The sinus was irrigated with warm olive oil and the bismuth removed, following which the stomatitis subsided, although the pigmentation on the gums and tongue still persist.

1. Mayer and Baehr: Surg., Gynec. and Obst., 1912, **15**, 309.
2. Beck, E. G.: Bismuth Paste in Chronic Suppurative Sinuses and Empyema, THE JOURNAL A. M. A., July 1, 1916, p. 27.
3. Beck: Illinois Med. Jour., 1909, **16**, 601.

A CASE BEARING ON THE FUNCTION OF THE PITUITARY BODY

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The pituitary body consists of two distinct parts, differing in development, in structure and in function. In this respect it bears a close resemblance to the suprarenal glands. The anterior part of the pituitary

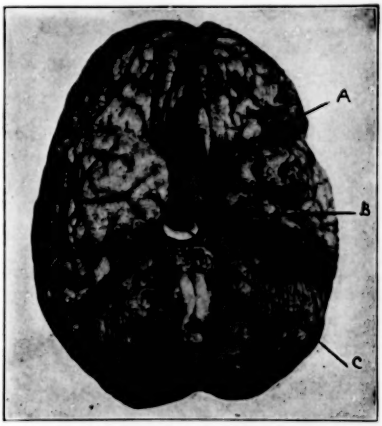

Fig. 1.—Base of brain, showing interpeduncular tumor surrounding infundibular stalk: *A*, tumor; *B*, infundibular stalk; *C*, pituitary body.

is developed from an invagination of the pharynx (Rathke's pouch), it is glandular in structure, and its function is that of a regulator of skeletal growth and sexual development. It is possible, moreover, that it may exert some influence on body temperature, for Cushing[1] points out that a rise of temperature follows

1. Cushing, Harvey: The Pituitary Body and Its Disorders, p. 14.

injection of extract of the anterior lobe in cases of anterior lobe deficiency. The posterior part, separated from the anterior part by the pars intermedia, is developed as a downgrowth from the floor of the third ventricle, shows in its structure traces of its nervous origin, and has a controlling influence over plain muscle generally, and also over carbohydrate metabolism.

There can be no question that the posterior lobe, or possibly its epithelial investment (pars intermedia), produces a secretion of great physiologic activity. Injections of posterior lobe extracts produce an extraordinary rise of blood pressure, owing to their stimulating effect on the plain muscle of the peripheral vascular system. Moreover, the posterior lobe is known to exert a profound influence on carbohydrate metabolism. If a condition of hypopituitarism be induced, either by experimental extirpation of the posterior lobe, or as the result of a pathologic process affecting that lobe, the normal process of glycogenolysis is interfered with, sugars are stored in the body, and there is a resultant accumulation of fat. In this condition it is possible for a patient to ingest very large quantities of sugar without a glycosuria being induced. Such a condition is described as a high sugar tolerance. But the question which presents itself is, How does this secretion, whether internal or external, reach the blood stream? It is in the hope that a little further light may be thrown on this question that the present case is described.

The histologic appearance of the nonvascular pars nervosa certainly does not suggest that a secretion is absorbed from it directly into the blood stream. The only other mode of such absorption, so far as we know, is into the third ventricle, in which case the cerebrospinal fluid would become the vehicle of the active principle. Several facts in our possession suggest that this may prove to be the correct answer.

Fig. 2.—Sagittal section of brain, showing infundibular stalk emerging from tumor.

The infundibular recess of the third ventricle is prolonged for a varying distance into the infundibular stalk, which connects the hypophysis with the tuber cinereum. In some animals this prolongation extends right into the posterior lobe, so that any secretion produced by that lobe can readily pass into the third ventricle. If in some cases this is the normal course, it is not unlikely that in all cases it is the only course.

In the neurogliar network of the posterior lobe, globules, apparently of a colloidal nature, can be seen if a suitable histologic technic is adopted. Herring[2] demonstrated that these globules make their way from the pars intermedia through the substance of the posterior lobe toward the prolongation of the infundibular recess of the ventricle, into which they appear to discharge. It is highly probable that this colloid represents the active principle of the posterior lobe.

Another link in the chain of evidence was forged by Cushing and Goetsch,[3] who showed that injections of the cerebrospinal fluid produced physiologic symptoms similar to those obtained with posterior lobe extract. These observers were successful in producing their results with human cerebrospinal fluid, as well as with that obtained from animals. Goetsch[4] further found that by placing a clip on the infundibular stalk in animals he could produce a high tolerance for sugars, thus indicating that the route by which the posterior lobe active principle is absorbed had been interfered with.

Finally, in the case about to be described, it will be seen that Nature placed a ligature in the form of a glioma around the infundibular stalk, thus cutting off access to the third ventricle, with the result that a high sugar tolerance was produced.

History.—A well developed boy of average height and weight, aged 10½ years, in February, 1915, began to suffer from slight attacks of frontal headache, occasionally accompanied by vomiting. These, however, were never serious enough to prevent him from attending school. At the same time he complained to his father that he was able to see only one half of the clock. He was seen by Dr. Harvey Smith, who found that vision in each eye was normal, and that no refractive errors or structural changes could be detected.

Physical Condition.—In September, 1915, he again consulted Dr. Harvey Smith, now complaining of defective vision. The ocular condition was found to be: vision, right eye, 20/70 unimproved with glasses; left eye, only very feeble light perception. Distinct exophthalmos was present. The pupils were larger than normal, and reacted sluggishly to light and accommodation. There was less reaction when light was thrown in obliquely from the temporal side. No field of vision could be obtained in the left eye. In the right eye, temporal hemianopsia existed with reversal of the color fields. The retinal vessels were dilated and tortuous, the edges of the disks a little hazy, and the surface of the disks injected. These changes were more marked in the left than in the right eye.

The case now came under the observation of Dr. Chestnut. The eye symptoms naturally directed attention to the pituitary region. A roentgenogram of the sella turcica was taken, which showed slight enlargement of the sella, but thinning of the bony walls. The tolerance to sugar was tested, and was found to be markedly increased, there being a negative result to 250 gm. of levulose. There was no polyuria, and the urine was normal. The systolic blood pressure was 110. Extract of the anterior lobe of the hypophysis was injected, but without producing any thermal response. This, together with the absence of skeletal and sexual changes, suggested that the lesion was probably one involving only the posterior lobe.

The eye symptoms, probably beginning with bitemporal hemianopsia, the high sugar tolerance, and the apparent enlargement of the sella turcica, all suggested a tumor of the pituitary body, and the patient was referred to Dr. Harvey Cushing of Boston, who concurred in the diagnosis. Dr. Cushing operated on him by the transphenoidal route, Oct. 29, 1915.

At the operation, notes of which were kindly furnished by Dr. Cushing, "a soft, translucent struma began to extrude itself from the small incision in the sella floor. As much of the growth as was thought justifiable was removed."

2. Herring, P. T.: The Histological Appearances of the Mammalian Pituitary Body, Quart. Jour. Exper. Physiol., 1908, **1**.

3. Cushing, Harvey, and Goetsch, E.: Concerning the Secretion of the Infundibular Lobe of the Pituitary Body, and Its Presence in the Cerebrospinal Fluid, Am. Jour. Physiol., 1910, **27**.

4. Goetsch, E.; Cushing, Harvey, and Jacobson, C.: Carbohydrate Tolerance and the Posterior Lobe of the Hypophysis Cerebri, Bull. Johns Hopkins Hosp., 1911, **22**, 165.

Subsequent History.—The patient returned to his home two weeks after the operation, and remained well, although with no apparent change in the eye condition, until the evening of November 21. He then had an attack of vomiting, and complained of severe headache. Seen by Dr. Chestnut on the following morning, he was in a semicomatose condition, with a temperature of 102 F., pulse of 100, and evident signs of cerebral irritation and increased intracranial pressure. He remained thus all day, but during the night had several convulsions, and sank into a condition of coma with modified Cheyne-Stokes breathing. Death occurred on the morning of November 23.

Postmortem Examination.—Permission was obtained for examination of the head only. The cranium was not unduly thinned. There was no flattening of the cerebral convolutions, nor any excess of cerebrospinal fluid. The sella turcica was a little wider than usual, but of normal depth. The pituitary body appeared normal, and lay free in the sella. It was removed together with the brain. On the inferior surface of the brain, in the interpeduncular space, and apparently growing from the region of the floor of the third ventricle, there was a large, soft, grayish mass, which was at first mistaken for a tumor of the pituitary body. The left optic nerve was embedded in the mass. But the most important, indeed, the essential feature of the case was the fact that the infundibular stalk was completely surrounded by the tumor, passing right through it, and being apparently constricted by it. It was as if some ingenious experimentalist had placed a ligature round the stalk in order to determine the effect of such a procedure. The involvement of the stalk was even greater than appears in the accompanying illustration. On removing the brain and inspecting the floor of the sella turcica, one could not but admire the precision and perfection of the operative approach. The clean oval opening lay in the very center of the floor of the fossa, and exactly underneath the pituitary body.

Microscopic Examination.—The tumor is of an open reticular structure. In the meshes of the network there are considerable accumulations of hyaline material. The cells, which are large and round or oval, show in places a definite syncytial arrangement. Here and there are blood spaces, showing marked dilatation and engorgement. Specimens stained with phosphotungstic acid hematoxylin show coarse neuroglia fibers. There is no sharp line of demarcation between the tumor and the brain substance. The growth is an example of a glioma. Except for some increase in the number of eosinophil elements, the pituitary body shows no evident abnormality.

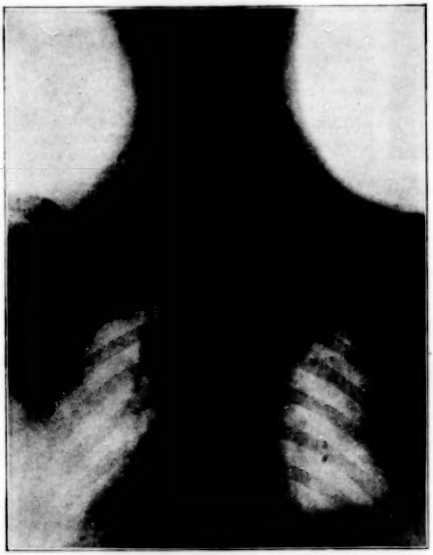

Fig. 1.—Roentgenogram taken in October, 1911. The enlarged innominate gives a definite shadow. It was thought that the aorta, too, was involved; the necropsy disproved this.

SUMMARY

1. The patient displayed symptoms of pituitary posterior lobe deficiency, in addition to pressure "neighborhood" symptoms.

2. There was no evident pathologic lesion in the pituitary body itself.

3. A tumor encircled the infundibular stalk, thus interfering with any communication which may normally exist between the posterior lobe and the third ventricle.

4. It seems not unreasonable to regard this case as an additional argument in favor of the theory that the secretion of the posterior lobe of the pituitary passes by way of the infundibular stalk into the third ventricle.

INNOMINATE ANEURYSM WITH RUPTURE

REPORT OF A CASE WITH TUBERCULOSIS OF ADJACENT TISSUES

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The arteries usually affected by aneurysm are, in the order of frequency of involvement, the thoracic aorta, the popliteal, the femoral-iliac, the carotid, the subclavian, the innominate and the axillary.[1] Aneurysms of the innominate are in themselves sufficiently rare to warrant recording their occurrence. The case about to be described presents, however, two additional features of unusual interest: (*a*) tuberculous involvement of the tissues adjacent to the arterial wall; and (*b*) external rupture of the aneurysm. Innominate aneurysms very seldom fill with clot and heal spontaneously. More often they gradually increase in size. They seldom perforate into the trachea, pleura, mediastinum or a vein. Still more rarely do they perforate externally.[2]

Tuberculous disease of arteries is in itself rather a frequent lesion, vessels being affected by inoculation with bacilli carried to them from distant points, or by direct extension of the process from adjacent foci. Numerous cases have been reported as proof of the former method. In some of them the arterial disease is a part of a general, acute miliary tuberculosis; in others there is a chronic tubercle of a large artery, such as the aorta, this being occasionally followed by an acute miliary tuberculosis, presumably arising from the chronic lesion.[3] The second method is by far the more common, and is often seen in the involvement of arteries in tuberculous lungs. Here the process is one of destruction of the external coat and, if the process

1. Osler: Aneurysm, the Principles and Practice of Medicine, Ed. 8, 1912, p. 849.

2. Michanowsky: Das Aneurysma der Arteria anonyma und seine Therapie, Inaug. Diss., Berlin, 1910.

3. Krumbhaar: Solitary Tubercle of the Aorta, Occurring in a Case of Generalized Tuberculosis, Bull. Ayer Clin. Lab. Pennsylvania Hosp., 1908, No. 5, p. 68. (Bibliography to 1908 given.)

is a rapid one, aneurysmal dilatation, with occasional rupture and fatal hemoptysis, may occur. The process, however, is usually and fortunately a more chronic one, so that from the beginning the inner coat reacts, thickens, and eventually, with or without the aid of a thrombus, leads to obliteration of the lumen. Ultimately the thrombosed area may undergo caseous degeneration.[4]

Fig. 2.—Side view of patient, showing tumor mass, arising on the right side but extending to the median line.

On the other hand, tuberculous disease of large arteries by direct extension is rare, probably because of the inherent anatomic resistance offered by the elastic fiber present. Even in cheesy tuberculous foci it is well known that elastic fibers resist the longest. Furthermore, tuberculous glands seldom extend beyond the capsule, and rather tend to mat and form a big mass, with the production of periglandular fibrosclerotic tissue.[5]

Tuberculous disease of large arteries being rare, it naturally follows that in the production of aneurysms, tuberculosis can play only an insignificant part. As a matter of fact, there is but one case on record in which tuberculosis seems to have been the etiologic factor. Curiously enough, in this case the innominate was the artery affected.[6] Here the patient was known to have tuberculosis. There were no distinct signs of aneurysm, no marked dulness, no pulse differences, and a recurrent paralysis was ascribed to the tuberculosis. The patient died of miliary tuberculosis. Postmortem examination revealed an innominate aneurysm the size of an egg, almost filled with laminated thrombi. Histologic study showed tuberculous disease of the vessel wall, the latter having led to the aneurysm formation.

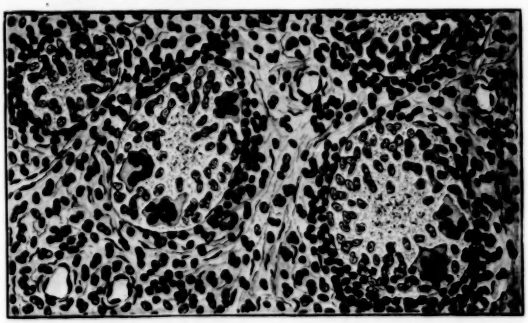

Fig. 4.—A drawing of a microscopic preparation made from a biopsy taken ten days before death. The tissue was fixed in 10 per cent. dilution of liquor formaldehydi, mounted and sectioned by the celloidin method, and stained with hematoxylin and eosin. In all three complete miliary tubercles are visible and a part of a fourth. The centers of the lesions have undergone caseous degeneration; giant and epithelioid cells appear more toward the periphery, and the outermost division of the tubercles is composed largely of small round cells.

In the following case the aneurysm was undoubtedly the result, not of a tuberculous process, but of syphilitic disease. There was a history of untreated syphilis, and the finding of a positive Wassermann reaction. There was history of pain over a period of two years before the mass appeared. This pain was not of such a character as could be referred to lung or pleura. Furthermore, sections made from the arterial wall showed, in spite of its close proximity, no involvement by the tuberculous process.

Fig. 3.—A drawing of the heart and a portion of the large vessels passing off from it. The superior vena cava has been removed in part to facilitate the delineation of the large fusiform aneurysm of the innominate artery. The rent in the aneurysmal wall which communicated with the sinus that opened on the cutaneous surface of the body above the inner end of the right clavicle is also shown.

REPORT OF CASE

History.—F. C., man, negro, aged 42, first sent for me on the evening of June 12, 1911, desiring relief from precordial pain. He told me that he had an aneurysm, and that this diagnosis had been confirmed by Roentgen examination six months previously (in December, 1911, at the Presidio).

For two years prior to this time he had suffered from occasional attacks of pain, at first rather localized to the region of the second right costal cartilage, but later of a sharp, lancinating character all through the right side of his chest, and at times in the neck and down the right arm, and at times he could scarcely raise it. March 1, 1911, he had noted the presence of a mass above the inner end of the right clavicle. He had no dyspnea except for a short time at the onset of the trouble, no cough, dysphagia or hoarseness.

The patient was well developed and nourished, 5 feet 7 inches in height, and weighed 155 pounds. He was comparatively comfortable the following morning, and nothing of importance was noted other than what was unmistakably an aneurysm. Except for pain, subjective symptoms were absent. The tumor, which was small, was visible above the

4. Roger: Brouardel and Gilbert, Nouveau traité de médecine et de thérapie, **24**, 143.
5. Schlesinger: Tuberkulöses Aortenaneurysma und Miliartuberkulose., Ztschr. f. Tuberk., 1914, **23**, No. 5.
6. Weinberger: Mitt. d. Ges. f. inn. Med. u. Kinderh., 1916.

sternum, extending just to the right sternoclavicular junction. At this time it was thought that the innominate was involved. (The examination was not complete and further observations were discouraged by the patient, who felt that more relief was obtained from "Dr. Munyon's X X X rheumatism and indigestion cure" than from iodids and from the morphin given for pain.)

In 1890 the patient had had a venereal ulcer for which he had taken medicine for six weeks. No symptoms or signs of syphilis had ever followed. He had been married ten years; his wife, a Filipino, had never been pregnant. He had malaria in 1898 in Cuba and tonsillitis in 1909. He was in the United States Army from 1892 to 1900, and then in the quartermaster's department for four years. He had never used liquors or tobacco.

He was again seen, Aug. 3, 1911, when he came to have an application for a pension signed. He permitted examination of his neck, which showed but a very slight increase in size, and stated that he was still taking the XXX and felt fine. He was warned as to the danger he was incurring by engaging in active exercise, but he evidently paid little heed to the advice. He was again seen, October 2, having been several days in bed.

Examination.—The tumor had increased considerably in size; it bulged and pulsated to such an extent that, with the thinning of the overlying tissues, it seemed almost ready to break through the skin. The apex beat of the heart was not heaving, in the fifth space, in midclavicular line. A soft systolic murmur replaced the first sound. A somewhat rough systolic murmur was audible over the aortic area as well as over the tumor mass. The pupils were equal and small, and reacted to light and accommodation. The lids were tremulous. The skin, sclera and mucous membranes were negative. There was no jaundice. The tongue, throat and gums were negative. The thyroid was negative. The posterior cervical glands on the left side were palpable; also small left epitrochlear. The lungs were negative. The abdomen was level, symmetrical, soft and tympanitic throughout. There was liver dullness, fifth rib to costal margin in midclavicular line; it was not palpable. The spleen and kidneys were not palpable. The penis, testes, back and extremities were negative. The reflexes were normal.

The patient was induced to enter the University Hospital, October 19, where he remained for six days. Figures 1 and 2 are from pictures taken during this period. Blood examination revealed the Wassermann reaction weakly positive; hemoglobin, from 88 to 60 per cent.; red blood cells, 4,800,000; white blood cells, from 9,000 to 7,000; polymorphonuclears, 72; large mononuclears, 8; small mononuclears, 18; eosinophils, 2. The systolic blood pressure while the patient was in the hospital was: October 19, left, 140 mm. Hg; October 24, right, 94; 1.104; October 26, right, 102; 1.114. Urine examination was negative. The fundi showed no abnormalities. The lids were tremulous.

Diagnosis.—It was believed that the subclavian was the vessel most involved, and this opinion was shared by all who saw the patient. The roentgenogram, however, showing apparent involvement of the innominate and even possibly of the aorta, frightened off even the most daring of my surgical friends, one of whom was at first aching to attempt a surgical cure. Attempts to induce clotting, by introducing silver wire, did not appeal to the patient, who wanted me to stick in some sort of needle and let out blood, his idea of an aneurysm being that it was a walled off pocket of blood, easily drained.

After going home, October 27, the patient was pretty comfortable for a while, having a dragging pain only when recumbent on either side. This became more severe, seemingly aggravated by a gradual softening of the entire mass, but relieved by lying flat on his back. November 10, on arising in the morning the patient removed the cotton gauze dressing with which he kept the mass covered, and found that perforation of the skin had occurred; then there escaped at least a quart of thin yellowish fluid, this being attended by a sense of relief and with no shock. There was no blood in the discharge. The patient was seen on the following day, and on November 15 was again taken to the hospital where the following notes were made:

General condition about the same as on leaving hospital in October. Shoulder feels stiff and sore; patient has little use of right arm. Practically no pain. Weight 138 pounds. Hemoglobin 84 per cent.; red blood cells, 4,000,000; white blood cells, 9,200; polymorphonuclears, 68; large mononuclears, 10; small lymphocytes, 22. Urine negative.

November 20: Since the patient entered the hospital the wound on the neck has been carefully cleansed daily with hydrogen peroxid and packed with small gauze strips with a small amount of camphor-phenol. The purulent discharge seems to be decreasing and granulation occurring rapidly. Smears were taken today; also a small section of wall of ulcer. The tissue is not sensitive and not highly vascular.

November 22: Yesterday morning at 5 a. m. the intern on service summoned to see the patient, who was reported as pulseless after a large hemorrhage, found that the patient had been to the water closet a short time previously, and had just fallen asleep when he was awakened by a gush of blood from his neck. He was lying in a great pool of blood, on his right side. The pulse was weak, but clearly made out. Morphin sulphate, 0.015 gm., was given hypodermically. The hemorrhage was pretty well stopped of itself at that time, and after preparations had been made for a possible secondary hemorrhage, the dressing was removed and the sinus closely packed with iodoform strips. The patient was dizzy, and complained of great thirst. He was given plenty of fluids, but no stimulation.

November 23: It had been intended to leave in the packing for sixty hours, if possible, but this afternoon at 4 o'clock the patient's temperature rose to 39 C. (102.2 F.). The packing was removed, the sinus cleaned, and more tissue from the granulating surface removed for injection into guinea-pigs and for staining for tubercle bacilli. (See pathologic report below.) The artery could be seen pulsating in the floor of the sinus. It was covered by a large slough which it seemed best not to disturb. The patient suggested that he could at times feel the escape of air in the sinus when he took a full breath. The process was undoubtedly in close apposition to the right apex. The pulsation seen was probably from the right subclavian artery.

Of the tuberculin reactions, the von Pirquet was positive, the Calmette questionable, or very weakly positive if at all, and the Moro negative.

November 24: This morning the sinus was unpacked, filled with collargol solution, 5 per cent., sterilized by boiling, and roentgenograms taken. The mediastinum was taken obliquely to miss the heart shadow if possible, and an anteroposterior view was taken. The patient's condition was good. The blood picture showed little effect from hemorrhage. Late this afternoon the patient's temperature rose to 39 C. (102.2 F.). (This seemed to be a part of the febrile course that had been present since the patient entered.) He had been constipated to a marked extent, but no more distress was noted in his neck.

November 30: The patient's sinus was granulating very rapidly and had decreased to one third its former size. It was dressed three times a day. The patient complained of increasing tenderness in the right shoulder, extending down inside of the arm to the elbow. He believed there was slight swelling of the forearm, though I could not make it out. The glands of the axilla were much enlarged and very painful. Tincture of iodin and an ice bag were applied locally.

Previous to this time the patient had received three injections of a mercury preparation intravenously (November 16, 18 and 20). Inunctions of mercury and potassium iodid were given November 25 to 30, inclusive.

December 1, 1911: At 3:55 a. m. the patient had a large hemorrhage, further severe ones occurring at 4.30, 6 and 7 a. m., at which time 700 c.c. of salt solution with 10 minims of epinephrin were administered intravenously.

The patient died at 7:30 a. m.

Pathologic Report.—Necropsy was performed December 1. Rigor mortis was complete. Despite the natural pigmentation of the skin, it showed a marked pallor. The pupils were regular in contour, moderately and equally dilated. Palpable lymph glands were slightly enlarged. There were no visible skeletal deformities. An irregular sinus opened above the

inner end of the right clavicle and led downward and medially; its external orifice measured about 4 by 3 cm., the long diameter being approximately parallel with the upper border of the clavicle. In the neighborhood of the sinus, the tissues showed a considerable degree of tumefaction.

When the thorax was opened and the lungs retracted, a large fusiform aneurysm of the innominate artery was visible. It was firmly adherent to the tissues surrounding the sinus. The heart and large vessels were removed *en masse*. In the aneurysmal sac at its upper and anterior aspect there was a rent which was continuous with the sinus opening above the clavicle. Through this rent an underlying thrombus appeared. The aneurysm measured 7 by 5 cm., and involved the innominate artery throughout its entire extent, but did not include the subclavian or common carotid arteries. The thrombus was of such size as almost to completely fill the cavity of the aneurysm, was easily removed, being attached to the wall of the vessels by very thin adhesions, and on gross section was found to consist of fibrin arranged in a distinctly lamellated manner. The shape and loose attachment of the thrombus was of such a nature that it must have acted during life very much in the fashion of a ball-valve. The chambers of the heart were practically free from blood save for a few small clots entangled in the meshes of the trabeculae corneae. Both the thoracic and abdominal divisions of the aorta evidenced a mild degree of patchy atheroma. The cardiac valves were free of microscopic pathologic changes, which was also true of the circumvalvular and remaining mural endocardium. The foramen ovale was not patent. The coronary arteries were in good condition. The left ventricle was somewhat hypertrophied.

The parenchyma of the apex of the right lung was contracted by several fairly large cicatricial processes, and the visceral pleura of that region as well as the adjacent parietal pleura were studded with miliary tubercles. The tuberculous involvement of the parietal pleura on the right side extended as far down in the midaxillary line as the upper margin of the fourth rib, and above it invaded the perisinusoidal areas quite out to the cutaneous limitation of the opening. The left lung was clear of tuberculous lesions as well as the left pleura in its entirety.

Aside from varying moderations of exsanguination, the abdominal organs and the external genitals showed nothing of any special pathologic importance. The brain and cord were not removed.

Additional Notes.—Ten days before the patient's death a piece of the wall of the sinus at its external opening was removed for the purpose of microscopic examination and inoculation experiments. The sections revealed typical miliary tuberculous lesions. A portion of the biopsy was triturated in sterile normal salt solution, and of the resulting fluid, 1 cm. was injected subcutaneously into each of two guinea-pigs, right thigh, ventral aspect, below the inguinal glands. Twenty-one days later the animals were etherized to the point of death and smears made from the enlarged and broken down glands of the inguinal regions above the points of inoculation. Stained by the acid-fast method, these showed numerous tubercle bacilli.

Dried Agricultural Products.—An industry that is sure to be developed to a greater extent than at present, in the opinion of the *Scientific American* (June 24, 1916), is the drying of agricultural products, such as potatoes, and aqueous industrial residues, such as the products of the sugar factories and the breweries. In France, it is said, fresh beets are dried, and three beet sugar works dry the exhausted beet pulp. Another industry in France is the making of "sugar flour" from fresh beet pulp by a process using increasing temperatures up to 120 C. A flour is produced which has the sweetening property of sugar to a certain extent, which can be used in all instances when the sugar it not required to be pure, as in breweries, for special breads, for feeding stock, etc. It is said a ton of beets produces 500 pounds of flour which sells for $2 a hundred. The drying of potatoes will be of especial practical value on account of the difficulty of keeping and handling them in their raw state. Damp grain may also be dried.

BERIBERI

REPORT OF CASES *

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CASE 1.—*History.*—K. Saito, a Japanese man, aged 44, had been in the United States for twelve years engaged in domestic work. He had not returned to Japan in that time. His family history had no medical significance. His complaints on admission to the medical clinic were headache, palpitation, digestive disturbances and insomnia. He had no history of previous acute disease, and had always been in good health until five months previously, when he took cold and the present symptoms developed. Three years before he had been operated on for a fistula in ano which was cured and had not recurred. He had had no digestive disorder before the condition for which he now sought relief. His weight had not varied from 155 to 160 pounds for five years past.

Physical examination showed a middle-aged Japanese, fairly well developed and nourished. His pupils were equal, medium, regular, and reacted to light and accommodation. His teeth were in poor condition with much caries and pyorrhea. The gums were spongy. The pharynx and tonsils were negative. No abnormality was detected in the lungs. The heart showed some increase of transverse cardiac dulness, from a half inch to the right of the right sternal border to a half inch outside the nipple line in the fifth left interspace. The impulse could be felt over the entire precordium, but there was no murmur or thrill. The area of the great vessels was not perceptibly widened to percussion. The radial pulse was equal, regular, 86, and the arteries thickened. The systolic pressure was 165 mm. (Faught).

The abdomen was symmetrical, protuberant and very tympanitic. Hepatic and splenic dulness were not increased, nor were these organs palpable. The extremities showed a deep tense pretibial edema. The knee jerks were absent and the Achilles jerk decreased. There was a sensation of numbness in the legs, but no anesthesia or muscular weakness could be detected. Some soreness was complained of over the nerve trunks of both upper and lower extremities. The patient said he had considerable numbness and tingling of the legs and a cap-sensation of numbness over the cranium. There was no motor or static ataxia. Some hyperesthetic areas were found on the sides of the chest and on the thighs. There was no disturbance of temperature sense. The nervous system findings were confirmed in the neurologic clinic.

Special examination of the eyes showed no refractive error or lesion of the fundi. There was moderate puffiness under the eyes. The patient stated that his diet consisted largely of milled or polished white rice; in fact, that it constituted the major portion of his food and had for many years. He had no venereal history and no evidence of having had venereal infection. A second examination of the eyes showed fundi and visual fields normal. Ears, throat and nose presented no abnormality. The clinical course was one of steady improvement both subjectively and objectively under a treatment of rest in hospital, where he was referred to the clinic ward for observation, mixed diet and mild tonics. He had several crops of boils which healed with no ill effects. Temperature, pulse and respiration were always within normal limits.

Laboratory Findings.—Blood: Average blood count gave 80 per cent. hemoglobin (Dare); white cells, 5,600; polymorphonuclears, 64 per cent.; lymphocytes, 26 per cent.; mononuclears, 3 per cent.; eosinophils, 5 per cent.; and transitional cells, 2 per cent. Stool: No occult blood. Practically normal digestion. Numerous clonorchis ova. Urine: Neutral, specific gravity 1.020, very slight trace of albumin, no sugar, a few hyaline and finely granular casts, epithelial cells and mucus. Wassermann reaction on blood serum was negative. Ten days after a provocative intravenous injection of 0.5 gm. arsenobenzol, the Wassermann reaction was still negative. Roentgenogram of the bony spine showed no abnormality.

* Presented before the Cooper Clinical Society, San Francisco, May 8, 1916.

Spinal fluid: At the first examination, the Wassermann reaction was suggestive of positive (1, + + +; 0.5, + + +; 0.1, + + — —; 0.025, — —) 1 polymorphonuclear cell per cubic millimeter. Nonne-Appelt phase 1, very slightest trace. Noguchi butyric acid reaction, negative. In view of these findings the patient was given 0.5 gm. arsenobenzol intravenously, and ten days later the spinal puncture was repeated. On second examination the Wassermann reaction was negative in all dilutions. One polymorphonuclear leukocyte was found per cubic millimeter. Nonne-Appelt phase 1 and the Noguchi reaction were negative. The colloidal gold reaction was 0, 0, 00000000. Gastric contents: Ewald test meal, removed by tube in one hour, was well digested; no blood; a little mucus; occult blood, + +. Total acid, 30. Free hydrochloric acid, 12. Phenolsulphonephthalein excretion: (1) First hour, 45 per cent; second hour, 40 per cent; total, 85 per cent. (2) First hour, 40 per cent.; second hour, 20 per cent.; total, 60 per cent.

This case on summary presents an interesting combination of findings. The diagnosis of beriberi is supported by the cardiac palpitation and enlargement, with pretibial edema, exposure to beriberic conditions, an afebrile course, and a peripheral neuritis. There was undoubtedly present a low grade chronic nephritis which, however, did not seem severe enough to account for the edema. The high phenolsulphonephthalein excretion, moderate blood pressure, and absence of other evidence of marked renal insufficiency point rather to beriberi as the principal pathologic condition. The diagnosis must include alveolar pyorrhea, cardiac hypertrophy, and arteriosclerosis of a moderate degree.

The clonorchis infection would help account for the pretibial edema, as it was evidently of long enough duration and intensity to produce an eosinophilia. Presumably the patient contracted the clonorchis at least twelve years before in Japan. The fluke would account, too, for the digestive disturbances.

As for the seriousness of the clonorchis infestation, opinion differs. In sections of China in which from 12 to 20 per cent. of the population are infected, the disease is rather disregarded. While the fluke cannot be eradicated, it is not considered a particularly dangerous parasite. Clonorchis ova have been found in the abdominal lymphatics, and the fluke inhabits the bile duct system as well as the duodenum. It does without question produce various gastro-intestinal disturbances, and the question of a toxin must be considered, especially if, as in this case, the eosinophilia and in any part the edema, are to be ascribed to the parasite. The further possibility of egg embolism is to be kept in mind. Dr. Herbert Gunn states that he has found about 14 per cent. clonorchis infection in the routine examination of a large series of orientals in San Francisco. Cases are not infrequent in the Stanford medical clinic.

CASE 2.—L. F. S., a Chinese man, aged 42, came to the medical clinic complaining of tiredness and numbness of the legs, with frequent urination and some irregularity of the bowels. The conditon was of gradual onset, was progressive and was first noticed five or six months previously. The family history was of no medical significance except that the father had died from pulmonary tuberculosis at the age of 73. There was no history of previous illness beyond frequent colds and much headache. There were no symptoms referable to the respiratory, circulatory or gastro-intestinal tracts. There was no history or evidence of venereal disease.

Up to the time of admission to the clinic, the patient had frequent nocturia and six or more urinations in the daytime. His habits were abstemious. He had been in the United States for thirteen years except for a period of sixteen months ending six months previous to admission, during which time he was visiting at his home near Canton, China.

The immediate illness consisted solely of numbness and weariness of the lower extremities, with headache, frequent urination, cold hands and feet, and at times constipation.

Examination revealed the patient rather pallid, moderately developed, and somewhat below the average stature. The teeth showed marked pyorrhea and caries. The pupillary reflexes were normal. The chest showed sunken supraclavicular fossae with corresponding dulness. There were no râles and no change in fremitus, voice or breath sounds. The cardiac dulness was not increased, and the sounds were of good quality and free from murmurs. After vigorous exercise, a slight irregularity was noted. The radial pulse was equal, regular and of moderate tension. The abdomen showed no abnormality. There were marked cyanosis and some clubbing of the fingers. A general adenopathy was present. The patellar reflexes were greatly exaggerated. At first a tentative diagnosis was made of underlying pulmonary tuberculosis with a secondary anemia. The laboratory examinations showed a moderate anemia with an eosinophilia of 5 per cent. Occult ova and trichocephalus ova were found in the stool. The sputum had no tubercle bacilli. It was thought that there might be a further helminth infection which would more adequately account for the symptoms than trichocephalus alone. With this in view, thymol was administered in the fashion recommended by Stiles, and the stools were examined, but no further ova or parasites appeared, although the occult blood disappeared.

At the time the thymol was administered, it was observed that there was definite but not very noticeable edema of the ankles, and especially of the pretibial regions of both legs. Also there was numbness of both legs from the midthigh down. Tactile sensation was unimpaired. Ankle clonus, the Babinski and Kernig reactions were negative. The knee jerks were constantly exaggerated. No paresthesia was observed. The diagnosis of beriberi was now considered. The patient was referred to the neurologic clinic with a tentative diagnosis of peripheral neuritis, which was confirmed. The tendon reflexes were all lively except the Achilles, which could barely be elicited. The Oppenheim reflex was negative. The abdominal and cremasteric reflexes were normal. Sensibility to heat and cold was normal, but with some diminution of acuity from the midthigh down. No definite area of anesthesia could be mapped out, and there was no disturbance of the deep reflexes. Except that a watch could not be heard on contact, there was no disturbance of the cranial nerves. The neuritis, while not prominent, was none the less definite.

In the complete absence of albuminuria and fever, and the absence of any other intestinal parasite except the trichocephalus in small numbers, it was felt that the positive features of exposure to beriberic conditions, a peripheral neuritis, a slight disturbance of the cardiac rhythm and a pretibial edema justified the diagnosis of larval beriberi. It is to be noted that no other cause for the neuritis could be found, alcohol and arsenic being ruled out among the first. A latent pulmonary tuberculosis could not be excluded, but if present, was certainly not active and not sufficient to account for the symptoms. Neuritis in tuberculosis is usually a late symptom, and such a cause can easily be excluded here. It is usually stated that eosinophilia does not occur in trichocephalus infection, but it is none the less not infrequently seen. If eosinophilia in any sense represents an anaphylactic reaction to helminth infection or helminth proteins, it is hard to see why this worm out of many should be exempt.

It is authoritatively stated that in beriberi the characteristic neuritic symptoms are especially displayed by the vagus and vasomotor nerves, the former being associated with the very characteristic cardiac lesions and the latter with the edema. Cardiac failure is the usual termination if recovery does not take place, and it is no unusual thing to see sudden and quite unforseen acute dilatation of the heart in patients who even

a few minutes before were apparently comfortable. It is hard to relate the entire cardiac pathology to the vagus, and it seems more reasonable that there is some local toxic influence on the heart. Before the cardiac irregularity was discovered in the case here presented, it was felt that the apparently normal heart was distinctly against the diagnosis of beriberi.

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FILARIASIS

REPORT OF TWO CASES IN THE DISTRICT OF COLUMBIA, AND ANALYSIS OF THE CASES REPORTED FOR EASTERN NORTH AMERICA *

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The term "filariasis" as here used is restricted to infections with *Filaria bancrofti* or at least with worms having embryos apparently of that type. Most of these infections in the northern states have occurred in persons who have acquired the parasite in the tropics and are consequently lacking in the interest which indigenous diseases possess. As an examination of the published cases, however, shows that, excepting two large series reported from Charleston, S. C., less than fifty have been recorded for eastern North America, one may perhaps be pardoned for reporting two other imported cases, especially as the disease may become endemic in this latitude, if it not already is.

Following a consideration of these two cases is a summary of what, it is hoped, are all of the cases previously reported, with a discussion of each case or group of cases. As compilers are only human, probably recorded cases in eastern North America have been inadvertently overlooked. Only cases in which adult or embryo worms were actually found have been considered.

It is not to be supposed that the 142 cases reported for eastern North America represent anything like the incidence of filariasis in this country. They are more apt to represent careful diagnosis and interest on the part of observers to report them. Judging by the large number of indigenous cases found in Charleston, S. C., one would expect them to be equally numerous in other southern cities; yet but few have been reported in them. In going through the *Index Medicus*, the indexes of THE JOURNAL, the International Catalogue of Scientific Literature and the cards of the Zurich *Concilium Bibliographicum* in looking for published records, I made no special effort to search for reports of filariasis on the Pacific coast. Two published records, however, show it to be present there. Wellman, von Adelung and Eastman[1] report filariasis as constantly present about San Francisco Bay, and describe some experiments with feeding mosquitoes on an infected Japanese; von Adelung[2] reports a case of chyluria in a Japanese, with embryos present.

As previous writers and the standard textbooks deal with the morphology, the life history, etc., of *Filaria*, and as these facts are generally well known at the present time, no reference to that aspect of filariasis will be made here. **Only an analysis of the cases previously described in eastern North America and the two here recorded will be attempted.**

REPORT OF CASES

CASE 1.—Colored medical student at Howard University, in 1902, between 20 and 25 years of age, native of Trinidad, West Indies.

This case was accidentally discovered by Dr. Paul Bartsch in teaching histology. At that time the medical course at Howard University was given at night, and in the routine study of students' fresh blood the moving embryos were found. This student was well developed, as shown by anthropometric measurements taken by Dr. Bartsch, and had no chyluria or enlarged glands. He appeared mentally listless and was unable to complete his medical course on that account. When first coming under observation he had been away from Trinidad for three years, and was under Dr. Bartsch's observation for one and a half years when he left the medical school and was lost sight of. Embryos were present in his blood when last seen, that is, four and a half years since leaving the tropics. The largest number of embryos found in a single drop of blood was seven, or about 150 per cubic centimeter, in blood obtained after 10 p. m. At 8 p. m. an occasional embryo was found in a drop, sometimes none, never more than one. During the day embryos were never found in drops examined, although many attempts were made to find them. At that time Rivas and Smith's method of drawing a few cubic centimeters from a vein and placing it in dilute acetic acid solution was unknown. In petrolatum ringed preparation of drops of blood, Dr. Bartsch has observed the embryos moving after a lapse of twenty-two days. The listless condition of this patient may have been due to a simultaneous infestation with hookworms, but his feces were not examined for them. I doubt if filariasis was the cause of it.

CASE 2.—Patient of Dr. George N. Overton, who suspected filariasis, and in conjunction with Dr. Walter Van Swearingen made a positive diagnosis by a night examination of the blood. Dr. Overton has kindly furnished blood from this patient for the past three years for use in my classes in clinical microscopy. Living embryos from this case were exhibited[3] at the Biological Society of Washington, March 25, 1916.

The patient is a bright, intelligent colored girl, aged 19 years, born in British Guiana. She has lived in Panama, whence she came to Washington in 1911, five years ago, in order to attend the Armstrong High School, where she was graduated this year. Her family history is negative except for a sister who has filariasis (diagnosed by symptoms), now living in British Guiana. Eight years ago while in British Guiana, she first noticed swelling of the right leg, later attended with intense pain and a "drawing" sensation of the limb, with headache, fever and chills; often she would retire feeling well only to be awakened with these symptoms; walking or any vigorous exercise would precipitate an attack. During these attacks there appeared a large lump in the right inguinal region which would slowly travel down the thigh, then to the leg and finally disappear in the region of the ankle. These attacks would number about three a month, lasting about one week. She received medical treatment at Demarara and Panama with negative results. In 1911 she came to the United States, and was soon after attacked in usual way. Three years ago she came under Dr. Overton's care, and the positive diagnosis of filariasis was made. This patient's blood has been examined only at night, from 9 to 10 p. m., and shows from one to three or four embryos in each drop; this is about 20 to 100 embryos per cubic centimeter. Aside from the embryos and an eosinophilia of from 10 to 15 per cent., her blood picture is normal. The treatment given by Dr. Overton has been local applications of ichthyol and iodin to the inguinal region, thigh, and leg, and a course of Fowler's solution and later of Donovan's solution. Under this treatment the local and systemic symptoms cleared up, but the embryos still persist in the blood. Continued residence in the temperate zone and the tonic effect of the treatment tried are probably responsible for her improved condi-

* Because of lack of space, this article is abbreviated in THE JOURNAL. A synopsis of all the cases heretofore reported in eastern North America will appear in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

1. Wellman, Creighton; von Adelung, Edward, and Eastman, Finley M.: The Relation of Mosquitoes to Filariasis in the Region of San Francisco Bay, THE JOURNAL A. M. A., July 16, 1910, p. 217.

2. Von Adelung, Edward: California State Jour. Med., 1911, **9**, 27.

3. Lyon, M. W., Jr.: Science, May 26, 1916, p. 762.

tion. I do not believe the treatment has had direct effect on the adult worms. I found as many embryos in the blood this year as I did three years ago. The contrast in mental picture between this case and the preceding listless patient of Dr. Bartsch is marked.

COMMENT

The source of infection in both cases was undoubtedly the tropics. The possibility of filariasis being spread from cases imported into this latitude must not be lost sight of. Mr. Frederick Knab of the Bureau of Entomology informs me that what is probably the important intermediate host in the spread of *Filaria bancrofti*, the mosquito known as *Culex quinquefasciatus* Say (formerly *Culex fatigans* of authors, also called *Culex pipiens* by Cuban authors and *Culex ciliaris* by Manson) is abundantly found in Washington during the late summer. It seems not unlikely that the summer temperature conditions in this latitude are suited to the development of the embryos into infective forms. That this actually has happened is perhaps shown by Barnes'[4] Washington case, by Slaughter's[5] Alexandria, Va., cases and by Dunn's[6] Philadelphia case. According to Mr. Knab the known range of *Culex quinquefasciatus* is as far north as Washington, D. C., St. Louis, and San Francisco. It has not been recorded in either Baltimore or Philadelphia, but Mr. Knab thinks there are no climatic reasons why it might not be found in those cities.

The possibility of infected mosquitoes being imported with bunches of bananas or other tropical fruits, as suggested by Johnstone[7] in reporting a possible Chicago case, and thus spreading filariasis beyond its endemic zone, should be considered. Mr. Knab, however, thinks this is a rather unlikely manner of carrying *Culex quinquefasciatus*. On the other hand, he believes there is considerable likelihood of infected female mosquitoes traveling from the tropics in the cabins or elsewhere on ships, and thus infecting individuals outside of the endemic zone. *Culex quinquefasciatus* is a house-inhabiting mosquito, and might readily be found in the rooms of vessels. There seems to be no reason why they might not also travel in the coaches of passenger trains from an endemic center like Charleston to more northern cities.

SUMMARY

Two imported cases of infection with *Filaria bancrofti* are reported for the District of Columbia.

Including these, 142 cases have been reported in eastern North America, 7 of which are doubtful records. One hundred and four acquired their infection in the United States; 28, in the West Indies or in South America; 1, in Egypt; 2, unknown but probably in the United States.

Distributed by sex and race, the 135 positive cases show: white males, 25; colored males, 38; males, race not stated or inferable, 12; total males, 75; white females, 21; colored females, 37; females, race not stated or inferable, 2; total females, 60; total white, 46; total colored, 75; race not stated or inferable, 14. The somewhat greater frequency of infection in males is probably associated with their seeking medical advice for involvement of the scrotum. The rather marked frequency of infection in the colored over the white is probably associated with the fact that in the large Charleston series the colored patients come from a class more apt to be bitten by mosquitoes. Excluding the Charleston cases the figures are: white males, 11; colored males, 4; males, race unknown, 12; white females, 5; colored females, 2; females, race unknown, 2; total males, 27; total females, 9; total white, 16; colored, 6; race not stated, 14. The ages of the patients varied from 6 years to old age.

Pathologically the cases show: no or almost no symptoms directly referable to the parasite or suffering from other affections, 72 cases, that is, about 50 per cent.; chyluria or hematochyluria, 36 cases; elephantiasis of the legs, 3; scrotal enlargement of various kinds, 13; inguinal enlargements, 11. Of the cases with chyluria, two showed that the chylous urine was passed by a single ureter, in one the right, the other, the left. This may have been the case with many of the others, as probably only a few were cystoscopically examined. In one case with inguinal enlargement, the mistaken diagnosis of hernia was made, and in one with scrotal involvement a supposed tuberculous testicle was removed. A moderate eosinophilia (from 10 to 15 per cent.) was present in most of the cases, but was entirely absent in some.

In those patients who became pregnant and had children, the embryos were not found in the child's blood, or in the mother's milk (Henry's[22] Philadelphia case; Saussure's,[44] and Johnson's[45] Charleston cases. Compare, however, Barnes'[4] Washington case).

Geographically the eastern North America cases are distributed from Canada to New Orleans and Key West, and from Boston to St. Louis. There is a large endemic center in Charleston, and probably elsewhere in the South. Indigenous cases are found along the Atlantic seaboard as far north as Philadelphia, but most cases north of Charleston are imported ones.

Culex quinquefasciatus, the mosquito which serves as the intermediate host for *Filaria bancrofti*, ranges as far north as Washington and St. Louis and perhaps farther. It is a house and city mosquito.

Adult worms remain living in their human host and give forth embryos for at least five years (Brooklyn and Washington cases), and probably thirteen years (Rosenberger's Philadelphia case).

The diagnosis is easily made by examining for living embryos in drops of fresh blood obtained at night, or by the Rivas-Smith method of placing a cubic centimeter of blood, day or night, in dilute acetic acid solution and examining the centrifuged sediment. The number of embryos found varies from one to over 2,000 per cubic centimeter, depending on the time of day or night examined and probably the number of parent worms.

Surgical interference, where the parent worms are accessible, has usually been successful when employed.

Medicinal treatment is unsatisfactory. In some of the foregoing cases salvarsan has apparently given good results. Branch[48] speaks highly of it in the West Indies; Cottle,[49] in the Pacific, thinks it ineffective.

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4. Barnes, N. P.: Month. Cycl. Med. Bull., 1913, **6**, 1; Tr. Am. Therap. Soc. for 1912, 1913, p. 136.
5. Slaughter, R. M.: Med. News, 1891, **59**, 649; Practice (Richmond, Va.), 1891, **3**, 329.
6. Dunn, Thomas D.: Tr. Coll. Phys., Philadelphia, 1898, Series 3, **20**, 80.
7. Johnstone, Mary M. S.: Chicago Med. Recorder, 1903, **25**, 34, 62; Woman's Med. Jour., 1904, **14**, 1, 25.
22. Henry, Frederick P.: Med. News, 1896, **68**, 477; Med. Surg. Reporter, 1896, **74**, 775.
44. De Saussure, P. G.: Med. News, 1890, **56**, 704.
45. Johnson, F. B.: South. Med. Jour., July, 1915, **8**, 630.
48. Branch, Edmund R.: Jour. Med. and Hyg., 1913, **16**, 364.
49. Cottle, George F.: U. S. Naval Bull., 1912, **6**, 84.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 35)

ALBUMINURIA IN INSURANCE

A broader point of view and better knowledge of functional or accidental albuminuria have made its discovery in applicants for insurance a cause for reexamination of the urine, and not a cause per se for rejection. That albuminuria is not normal is acknowledged, and when it is found more than once in an applicant he is either rejected or his acceptance postponed. The age of the person in whom it is found is of importance, as after 40 even traces of albumin are suspicious. For the same reason an occasional hyaline cast may not be alarming in persons under 30; in those over 40 it is ominous. An applicant in whom albumin is found should be reexamined unless the amount is considerable. After four negative specimens and an absence of casts, with a blood pressure below 140 mm. systolic, or with a diastolic below 100 mm. if the systolic is 150, with cardiac sufficiency, and with no history of syphilis, tuberculosis or any renal disease, the applicant should be accepted. Any signs of cardiac hypertrophy or symptoms of hypertension should cause the applicant to be rejected.

A specific gravity of anything less than the whole twenty-four hours' urine is unimportant. A single specimen may vary from 1.005 (nervous urine, or urine passed soon after a long summer drink, or in severe cold weather) to 1.025, and still not indicate the average specific gravity. A high specific gravity, namely, more than 1.025, without sugar and without normal sediment, is rarely found in applicants for insurance. An abnormally low specific gravity of the urine is frequent, and in such cases most insurance companies require another examination; such an examination, however, is not justified on these data alone.

As the action of tobacco on the heart, blood vessels and kidneys is positive, a question of great importance, which the applicant should answer, is, "How many cigars, cigarets, and pipes do you smoke a day?" This is not yet often asked on insurance examinations, but is just as important today (there being fewer men who drink to excess) as is the question, "How many glasses of beer or whisky do you drink a day?" It is not sufficient to determine that the blood pressure is not too high in those who smoke to excess, as the high blood pressure may have become normal as a result of the weakening of the heart muscle by tobacco.

Occasionally a peculiar nervous albuminuria occurs in certain persons while under some nervous tension. However, although this condition often accompanies such nervous tension, these people never give evidence of orthostatic albuminuria. It is, of course, possible that at times some associated but undiscovered cause is present.

There are also instances of albuminuria in active persons with casts in the urine for years without any apparent progression, whose death will not be due to cardiovascular-renal disease. In such cases data of kidney function tests and of the nonprotein nitrogen of the blood should be obtained. We can no longer assume that hyaline or a few granular casts demonstrate nephritis. They do demonstrate some abnormal congestion or disturbance in some part of the kidney, but such a disturbance may completely disappear, as can a mild disturbance in any other part or organ of the body. On the other hand, coarse granular, fatty and waxy casts show kidney inflammation.

Traces of albumin may result from inflammation of the prostate and of the seminal vessels, and, of course, from pus anywhere in the urinary tract. In albuminuria from vesiculitis, Belfield[58] finds that if the urine is passed into three glases, a little into the first, the bulk into the second, and a little into the third, a good reaction is found for albumin in the first and last glasses, but less in the second glass; while in renal albuminuria all of the urine tests the same. In prostatitis, massage of the prostate will increase the albumin in the urine passed immediately afterward. This is especially significant if the bladder has been previously washed. Of course urine drawn by ureteral catheters will positively prove the source of the albumin.

(To be continued)

THE MODERN TREATMENT OF MERCURIAL POISONING

Cases of mercurial poisoning, particularly with mercuric chlorid, are so common nowadays that we should be ready to treat these patients promptly. It is equally essential that every hospital should be prepared to treat patients with mercuric chlorid poisoning properly as soon as they are received. Until quite recently the prognosis was far from favorable; but the considerable degree of success attained of late in the management of mercury intoxication has given new hope and encouragement for vigorous attention in every case.

The excellent suggestions of Lieb and Goodwin[1] and of Lambert and Patterson[2] on which the prevalent mode of treatment is based have lately been supplemented by the further studies of Lewis and Rivers[3] at the Johns Hopkins Hospital. The keynote in the procedure is elimination, which must be encouraged energetically by every available method. The Baltimore investigators point out that many apparently moribund persons have been saved by properly directed and vigorously pushed therapeutic measures. Death should be the only indication, they remark, for a discontinuance of treatment prior to the complete recovery of the patient.

Inasmuch as the excretion of mercury into the stomach and intestine as well as its appearance in the sweat has been definitely demonstrated by chemical investigations, the instructions to wash out the stomach frequently, to irrigate the colon liberally and to induce perspiration by means of a hot pack are placed on a rational basis. The administration of alkalies is based on the work of Macnider, who, in an article in the *Journal of Experimental Medicine* (1916, **23**, 171), shows that they are capable of protecting the kidney from the full renal effect of salts of heavy metals like uranium which lead to pronounced nephritic disease as mercury does. Sodium bicarbonate exerts a diuretic action in addition, and there are indications of a decided benefit when it has been employed in mercury poisoning.

58. Belfield, W. T.: Vesicular Albuminuria, The Journal A. M. A., June 19, 1915, p. 2040.

1. Lieb, C. C., and Goodwin, G. M.: The Excretion of Mercury by the Gastric Mucous Membrane, The Journal A. M. A., June 19, 1915, p. 2041.

2. Lambert, S. W., and Patterson, H. S.: Poisoning by Mercuric Chlorid and Its Treatment, Arch. Int. Med., November, 1915, p. 865.

3. Lewis, D. S., and Rivers, T. M.: Chemical Studies on a Case of Bichloride Poisoning, Bull. Johns Hopkins Hosp., 1916, **27**, 193.

The high figures reported for nonprotein nitrogen of the blood indicate the retention of nitrogenous waste, which is undoubtedly a factor in the early fatal issue of some cases. Lewis and Rivers,[3] therefore, urge the administration of carbohydrate in the form of glucose, either by mouth or intravenously, in a 10 to 50 per cent. solution. In addition to serving as a mild diuretic, it is believed to exert a protein-sparing action and thereby delay the appearance of extreme grades of nitrogen retention which usually precede death.

As an index to the changes in the renal function, the specific gravity curve of the urine should be studied in addition to the familiar functional tests for kidney performance. Mosenthal[4] has shown how much information may be gained regarding the condition of kidney function from a study of this factor. In nephritis, marked fixation of the specific gravity at a low level occurs in only the severest types. This is characteristic of a kidney which has no reserve power whatever and is therefore compelled to function constantly at its maximum capacity in order to eliminate the end-products of metabolism which ordinarily find an exit from the body in the urine. The variations in the concentration of the urine, as expressed by its specific gravity, become more and more conspicuous as renal function approaches normal.

The accumulation of reliable guides based on careful studies of mercury poisoning are a fortunate accession to modern therapy. Any treatment which has a rational background of scientific indications to support it is always undertaken with greater zest, confidence and persistence than are the haphazard makeshifts of empiric rules. The indifference bred of failure is no longer justified. Quoting Janeway[5] in respect to the management of cases of mercuric chlorid poisoning, every practitioner either should know how to treat these patients, or should get them promptly to the nearest hospital that does.

4. Mosenthal, H. O.: Renal Function as Measured by the Elimination of Fluids, Salt and Nitrogen, and the Specific Gravity of the Urine, Arch. Int. Med., 16: 733, Nov., 1915.

5. Janeway: Discussion of the Paper of Lewis and Rivers (Footnote 3), Bull. Johns Hopkins Hosp., 27: 201, July, 1916.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

UREASE

Urease is a urealytic enzyme found in certain beans, fungi and micro-organisms.

Actions and Uses.—In the presence of water, urease converts urea into ammonium carbonate, thus: $(NH_2)_2CO + 2H_2O = (NH_4)_2CO_3$. It is employed in the determination of the amount of urea in the urine, blood and other body fluids.

Dosage.—For the estimation of urea in the urine, two methods are used, with various modifications: 1. A measured amount of urine is treated with urease, and after a specified time the ammonia produced is drawn into volumetric acid by means of an air current, and the residual acid determined by titration ("Absolute Method," D. D. Van Slyke, *Jour. Biol. Chem.*, 1913-1914, **16**, 125). 2. The alkalinity of a portion of urine, treated with urease, is determined with volumetric hydrochloric acid (methyl orange being used as an indicator). This figure is corrected for the acidity or alkalinity of an equal volume of the same urine, determined with the same reagents. The corrected figure represents the ammonium carbonate formed by the conversion of the urea present (Marshall, *Jour. Biol. Chem.*, 1913, **16**, 283).

The amount of urea in blood is determined by treating as in Method 1, the blood having been mixed with potassium citrate, to prevent clotting, as soon as drawn.

UREASE-SQUIBB.—Jack bean urease.—A standardized preparation of the urealytic enzyme obtained from the jack bean, *Canavalia ensiformis.*

Actions, Uses and Dosage.—See general article on urease above. Urease-Squibb is supplied in the form of powder and tablets.

Manufactured by E. R. Squibb and Sons, New York. No U. S. patent or trademark.

Urease-Squibb Tablets, 0.1 Gm.—Each tablet contains 0.1 Gm. urease-Squibb.

An aqueous extract of the jack bean is filtered, the clear filtrate reduced to dryness, the dry powder extracted with absolute alcohol, acetone and ether, dried, and the dry powder mixed with monopotassium phosphate and dipotassium phosphate in proportion to produce the maximum hydrolytic action and stability of the enzyme.

"It is a fine, white, practically odorless and tasteless powder, which dissolves readily in cold water, forming an almost clear solution.

If 0.1 Gm. of Urease-Squibb in 1 Cc. of water be added to 5 Cc. of phosphate-urea mixture (according to the "absolute method") and digested at 20 C. for fifteen minutes, it will decompose sufficient urea to liberate from 100 to 150 Cc. of fiftieth-normal ammonia by aeration.

NEUTRAL SOLUTION OF CHLORINATED SODA.—Solution Chlorinated Soda, Dakin.—Solution Chlorinated Soda, Carrel-Dakin.—A chlorinated soda solution, containing 0.43 to 0.48 per cent. of available chlorine, free from caustic alkali. It must be protected from light.

Actions and Uses.—Neutral chlorinated soda solution has the germicidal and other properties of solution of chlorinated soda, U. S. P., but because of its freedom from alkali is not irritating to the tissues. It does not coagulate or precipitate the proteins of the lymph exudate in wounds, nor does it inhibit leukocytosis or phagocytosis or the digestive action of tryptic enzymes. It has been used after the first cleansing and in the subsequent more or less continuous irrigation of wounds, especially of infected war wounds. Whether its action in this case is to be attributed to the real antiseptic or germicidal effect is still doubtful.

Dosage.—For external use, full strength.

Place 154 Gm. chlorinated lime, assaying 30 per cent. available chlorine (by the method of the U. S. P.) and 5 liters of water in a jar, stir thoroughly and let stand for 6 to 12 hours. Add to this with constant stirring a solution of 91 Gm. monohydrated sodium carbonate and 64 Gm. sodium bicarbonate in 5 liters of cold water. After one-half hour siphon off the clear liquid and filter it through double filter paper to obtain a clear solution. Transfer the liquid to glass containers and keep dark. (If the chlorinated lime contains a larger or smaller amount of available chlorine than 30 per cent. each of the ingredients to be used in making ten liters should be proportionately decreased or increased.)

If to 20 Cc. neutral solution chlorinated soda about 0.020 Gm. phenolphthalein in powder is added, no red color develops on agitation.

If the available chlorine of neutral solution of chlorinated soda is determined by the U. S. P. assay method for *liquor sodae chlorinatae* it should contain not less than 0.43 per cent., nor more than 0.48 per cent. available chlorine, equivalent to not less than 0.45 per cent., nor more than 0.50 per cent. sodium hypochlorite ($NaOCl$).

THEOBROMINE (See New and Nonofficial Remedies, 1916, p. 376).

Theobromine-Merck.—A nonproprietary brand complying with the standards for theobromine.

Manufactured by E. Merck, Darmstadt, Germany (Merck and Company, New York).

BARIUM SULPHATE FOR ROENTGEN-RAY WORK

(See THE JOURNAL, Oct. 7, 1916, p. 1091).

Barium Sulphate, P. W. R. for X-Ray Diagnosis.—A nonproprietary brand complying with the standards for barium sulphate for Roentgen-ray work.

Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia.

Barium Sulphate, Merck for X-Ray Diagnosis.—A nonproprietary brand complying with the standards for barium sulphate for Roentgen-ray work.

Manufactured by E. Merck, Darmstadt, Germany (Merck and Company, New York).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 13, 1917

PHYSIOLOGIC ASPECTS OF THE WORKING DAY PROBLEM

The length of the working day has a preeminently physiologic bearing, and recently has assumed increased political prominence. Lee[1] has presented the crux of the matter as follows: The eight-hour problem is primarily a problem of physiology; if the physiologic effects of any kind of labor are injurious, the conditions of such labor should be changed. This is fundamental, and should precede any consideration of the economic and social effects resulting from a change of conditions, a basic fact which is continually overlooked.

The most serious physiologic interference accompanying prolonged uninterrupted work is the familiar phenomenon of fatigue. Its existence is generally recognized, yet few except those who have attempted a more intimate analysis of work in relation to weariness realize the subtle ways in which fatigue not only damages the working human mechanism but also tends to lower the efficiency of its performance. Nowadays every student of medicine has opportunity to learn from his experimental study of physiology that the introduction of periods of rest during a laboratory experiment with a muscle diminishes the fatigue of the moment, aids recuperation, and delays the oncoming of exhaustion. This fact is demonstrated in each of us several times in a minute, since each beat of the heart is followed by a period of rest to enable the cardiac muscle to recuperate from the effects of the previous contraction. The beneficial effects of similar periods of rest in industrial labor, as Lee reminds us, are evidenced by the custom — not uncommon since the striking demonstration of the late Mr. Frederick Taylor in the lifting of heavy iron pigs — of giving workers occasional brief intervals of freedom from their tasks.

Any working day which, through conditions of intensity and rate of labor and environmental features, tends to cause the detrimental effects of fatigue should be modified. Here is a large field for the careful study of conditions relating to the hygiene of work. Formerly economic arguments were commonly employed to combat all attempts to reduce working hours for those performing heavy labor. Recently there has been a growing conviction that in many industries a shorter working period under more favorable physiologic conditions will frequently result in an output as large as that achieved on a longer working day basis, if not even larger. The question, however, is one not only of a shorter day, but also of more frequent periods of rest which may tend to eliminate the incipient fatigue which curtails efficiency.

Whether or not the reduction of the working period to the eight hour day is a physiologic necessity cannot be decided on any *a priori* grounds. Lee points out that two factors are to be considered: the characteristics of the labor, and the capacity of the laborer. Different occupations vary greatly in their fatiguing power. Especially productive of fatigue are those characterized by great muscular effort; unusual quickness or complexity of muscular action; single acts, however simple, which are monotonously repeated over long intervals of time; constant strain through concentration of attention or through a bodily posture long maintained, and those occupations in which the work is carried on in crowded places, in extreme heat and humidity, in the midst of excessive noise, or under other unfavorable environmental conditions. Perhaps the ideal will hinge on the establishment of a system of labor in which the length of the working day shall vary for each person according to his personal capacity.

It would be folly to say that other aspects of the problem deserve no consideration in the discussion of the working day. Labor leaders insist on the propriety of certain demands from the standpoint of social justice: an opportunity for something more than machine efficiency, and more time for personal enjoyment and social betterment. If the ideal conditions of work demanded are afforded, a serious obligation to do his best will rest on the laborer as well as on each one of us.

1. Lee, F. S.: Is the Eight Hour Working Day Rational? Science, Nov. 24, 1916, p. 727.

THE SANITARY ASPECTS OF THE PUBLIC FOOD MARKET

The widespread agitation regarding the high cost of food has focused attention on various possible palliative factors, among them the public or municipal markets. From the standpoint of the food economist these are assumed to contribute to better living conditions by lowering the cost of distribution, as well as by effecting other economies. The food market, whether under public or private control, introduces many problems of sanitary and hygienic importance, such as the care of easily deteriorated foods publicly offered for sale, which have already been brought within the jurisdiction of municipal boards of health or other forms of inspection service.

Other features are either too utopian or too difficult of enforcement to receive authoritative consideration

at the present time. Among these belong such matters as the personal cleanliness of food handlers and the perhaps still visionary schemes for indicating food values in some intellectually tangible manner. Now that the establishment of public markets is everywhere under discussion more widely than it has been before, it may not be amiss to inquire wherein sanitary science and hygiene might play some part in the plans for the future.

There are, first of all, possibilities of danger to health in the foods offered for sale. They may deteriorate from natural decay; they may be adulterated by harmful additions or equally unjustified subtractions; they may become sources of infection through personal contamination or careless handling, and be responsible for the transmission of disease. Such eventualities are recognized. Chemical and bacteriologic laboratories should cooperate with official inspectors, as they already do in many places, to enforce rational sanitary codes. Armstrong[1] believes that even greater safeguarding in the direction of standard analysis of food is likely to come in the future. This has long been urged by Lusk.[2] Thus he says:

> The poor, 50 to 60 per cent. of whose income is spent for food, waste their money in the purchase of beautiful labels or relatively expensive and unnutritious foods. A publisher employing several thousand individuals says that his employees buy from choice the products advertised in his magazines. Children of the poor are sent to buy food for the family and the whole expenditure of half the family's income is effected in an atmosphere of unfathomable ignorance. Yet if one seeks to help, one is informed that one must not meddle with the appetites, and the funny man of the newspaper makes a witticism on the subject of "highbrow" information.

In somewhat the same spirit Armstrong contends that eventually governmental authority will have to take the responsibility for food standardization, and, if this standardization is to be on a rational basis, calorific values will have to be employed. Further, if the purchaser is ever to be educated to the point at which she can buy her food supply on an intelligent food value basis, there will have to be a mechanism for routine calorific food analyses. In the present state of development, an equipment of this kind cannot, of course, be considered a prerequisite to the market establishment. At the same time, its need should be emphasized, so that in the future it may become an essential part of the municipal market control. Again, it must be made clear that this is, of course, of hygienic rather than of sanitary importance. Incidentally it may be pointed out that in "standardizing" foods for human consumption we should merely be imitating what has long been an enforced and now highly appreciated regulation in respect to cattle feeds.

1. Armstrong, D. B.: The Sanitation of Food Stores and Markets, Jour. Home Economics, 1916, **8**, 577; The Sanitation of Public Markets, THE JOURNAL A. M. A., this issue, p. 103.
2. Gephart, F. C., and Lusk, Graham: Analysis and Cost of Ready-to-Serve Foods, Chicago, American Medical Association, 1915, p. 15.

The ideal food market needs healthy employees. Good food deserves to be handled by persons free from communicable disease; otherwise wherein are the advantages of the legal protection of food, offered for sale, from dust, dirt, flies and other contaminations? Much of such regulation now becoming more popular in large municipalities is confessedly in the interest of decency rather than strict hygiene. With all these safeguards, however, the sanest sanitary regulations will not accomplish their best possibilities until the purchasing public is educated up to the significance of the modern, perhaps sometimes overdone, hygienic propaganda. Perhaps the highest standard has rarely been presented with broader vision than by Armstrong when he said:

> If eventually municipalities would meet the responsibility of having this program of personal food hygiene include, not only the infection-preventive and disease-suppressive factors of food protection, but also the positive, health-creative, educational factors of dietary food selection, the markets would then be utilized to something like their full potentiality as creative, social forces.

THE RESPONSE OF THE PYLORIC MECHANISM

The conditions which determine the gastric discharge through the pylorus into the duodenum, and the relations of gastric acidity to motility, discharge and duodenal regurgitation have a direct bearing on the diagnosis and treatment of disorders of the stomach. Recently the application of the Roentgen ray to the examination of movements of the alimentary tract in its various sections has led to definite conclusions as to the normal performance of the pyloric mechanism. Thus it is reported, as the result of observations on experimental animals, that if the secretion of gastric juice is deficient, the opening of the pylorus is not easily accomplished. The opening of the pylorus, however, seems to depend not only on intragastric events but also on the condition of the duodenum. So long as the contents of the latter are acid, the pylorus remains firmly closed. For example, it has been reported that if alkaline fluid is introduced into the stomach, it is passed rapidly into the duodenum; but if acid is introduced simultaneously by experimental devices within the duodenal canal, the pylorus remains shut and no fluid passes beyond its portals until the acid which bathes the duodenum is neutralized by alkaline juices secreted into the gastrointestinal lumen.

Starling[1] summarized the subject by saying that we probably have in the walls of the alimentary canal a local nervous mechanism for the movements of the pyloric sphincter. This may be played on by impulses starting either in the stomach or in the duodenum, probably by the contact of acid with the mucous membrane. Increasing acidity on the side of the stomach causes relaxation of the orifice, whereas acidity on the

1. Starling, E. H.: Human Physiology, 1915, p. 700.

duodenal side causes contraction of the pyloric orifice. The exact parts, however, played in the mechanism by the local system and by the central nervous system, respectively, have not yet been thoroughly made out, though there is no doubt that these movements may proceed independently of any connection with the central nervous system.

It has lately been pointed out that these deductions, drawn largely from observations on laboratory animals, are not entirely in accord with clinical observations. It is asserted that in cases of so-called hyperacidity, a retarded emptying of the stomach with resulting atony and dilatation is often found, and also, that in cases of achylia gastrica, in which there is practically no free acid found in the stomach, the normal rate of discharge is often unimpaired. It seems probable, therefore, that the presence of an acid reaction is not the only essential factor in the control of gastric discharge.[2] It would be futile to recite the details of the conflicting reports. Further carefully planned investigations in this field are clearly needed to unravel the tangle of discrepancies. In recent studies by Morse,[2] of the laboratory of physiology of the Northwestern University Medical School, the abolition of sympathetic reflexes which might inhibit the effects sought to be determined was accomplished by making observations on animals in which the spinal cord was in part destroyed. Quite unexpectedly throughout these experiments the presence of acid in the stomach in general has been observed to retard rather than hasten gastric discharge. It is reported that water is discharged from the fasting stomach of anesthetized pithed dogs more rapidly than any percentage of acid. The rate of discharge is decreased with increase of acidity. Duodenal regurgitation, as evidenced by increase in the contents of the stomach, often occurred at 0.2 per cent acidity, and in nearly all trials occurred at or before 0.3 per cent. acidity was reached. Increase in acidity increased the frequency and amount of regurgitation from the duodenum.

If any more universal application may be ascribed to the experiments of Morse, it appears that the acidity of fluid gastric contents has no supreme function in producing or hastening gastric discharge, but the discharge seems to be controlled by the irritability or nonirritability of gastric contents to the duodenal mucosa. This suggestion of a progressive diminution in the rapidity of discharge through the pylorus with increase in the acidity of the gastric contents is so contrary to the accepted version of what occurs[3] that at best we may speak of an old problem presented anew for solution. For the moment the center of interest in the control of the pyloric sphincter has been shifted more prominently to the region of the duodenum.

2. Morse, W. E.: The Relation of Acid to Gastric Discharge and Duodenal Regurgitation in the Dog, Am. Jour. Physiol., 1916, **41**, 439.
3. Cannon, W. R.: The Mechanical Factors of Digestion, New York, 1911.

HEMATOPORPHYRIN

Hematoporphyrin is the term applied to one or more iron-free pigments obtained by the decomposition of color-bearing components of the blood pigment hemoglobin. Its significance in medicine has been derived from the fact that hematoporphyrin is at times found as a noteworthy constituent of the urine, having a diagnostic import as a symptom of poisoning with sulphonal, trional, tetronal, quinin and other drugs. It has also been found in the urine in a variety of diseases which have no obvious common relationship in respect to the origin of the excreted pigment. It is even stated that traces of hematoporphyrin regularly occur in the urine of healthy persons.

To account for the elimination of hematoporphyrin in the urine, it is necessary to consider its antecedent possible origin from blood pigment in the body. Nothing definite relating to the mode of formation or the seat of production is known at present. The chemical relationships of hematoporphyrin offer a starting point for hypotheses respecting its introduction and physiologic significance. It is closely related to the bile pigment bilirubin and to the urinary pigment urobilin.

It is readily conceivable, therefore, that hematoporphyrin represents a stage in the destructive metabolism of hematin, the chromogenic part of the hemoglobin molecule, and that ordinarily the conversion proceeds to the stage of the bile pigment without betraying the intermediate product here under discussion. If this were true, urinary hematoporphyrin as well as hematin might represent degradation products which for some reason have escaped further change and consequently are excreted in the transitory stage.

Hoagland,[1] of the biochemical division of the Bureau of Animal Industry, has suggested a possible source of hematoporphyrin within the body not realized till now. In a series of experiments on the aseptic autolysis of ox muscle, he observed the appearance of pigment spectroscopically identical with hematoporphyrin. This result was obtained only when the air was excluded, and led the observer to conclude that the striated muscular tissue contains enzymes which, under anaerobic conditions, readily reduce oxyhemoglobin to hematoporphyrin. These findings appear to Hoagland to offer a satisfactory explanation as to the method and source of production of hematoporphyrin in the body.

In view of the fact that hematoporphyrinuria often is an accompaniment of cases of poisoning or disease in which the liver cells are believed to be destroyed or inactivated, Hoagland ventures a step further in postulating, on the basis of the foregoing, that probably hematoporphyrin may be a regular intermediate product in the transformation of hemoglobin into bile pigments. The generally accepted view, he says, con-

1. Hoagland, R.: Formation of Hematoporphyrin in Ox Muscle During Autolysis, Jour. Agricultural Research, 1916, **7**, 41.

cerning the disposal of the free hemoglobin in the blood stream under normal conditions, is that the hemoglobin is converted directly into bile pigments by the liver. Such being the case, it would seem that when an abnormal quantity of hemoglobin is liberated into the blood stream, or when the activity of the liver is greatly decreased by disease or other causes, hemoglobin rather than hematoporphyrin would be excreted in the urine. Yet hemoglobin is not so commonly found under such conditions.

There is, however, still another circumstance which deserves mention. If hematoporphyrin is formed as readily in muscular tissue as Hoagland would lead us to believe, may we not take into consideration the further possibility that hematoporphyrin is ingested in meat products more frequently than is suspected, and that an exogenous source of urinary hematoporphyrin is thus furnished? Until more is known of the fate of this interesting blood pigment derivative in the alimentary tract, in the blood stream and in the liver, only the vaguest hypotheses can prevail as to its true significance.

In any event, hematoporphyrin is only one of a series of closely related compounds, the porphyrins, which promise to have a greater significance in physiology and pathology than has generally been accorded to them.[2] Both the porphyrins of animal origin and the chlorophyl derivative, phylloporphyrin, seem to act as photosensitizing agents, rendering the body peculiarly susceptible to noxious effects from light. Animals injected with various porphyrins promptly exhibit untoward symptoms when exposed to light, but not when kept in the dark. There are affections of the skin, as hydroa aestivale, associated with exposure to bright sunlight, in which cutaneous symptoms manifest themselves simultaneously with the appearance of hematoporphyrin in the urine.[3] In other instances, likewise attended with hematoporphyrinuria, necroses have been observed in parts of the body exposed to light.[4] Such experiences seem to be more than chance analogies.

2. The Porphyrins in Pathology, THE JOURNAL A. M. A., March 29, 1913, p. 998.
3. Ehrmann, S.: Arch. f. Dermat. u. Syph., 1909, **97**, 83.
4. Perutz, A.: Wien. klin. Wchnschr., 1910, **23**, 122.

Reflex Epilepsy from Contusion of the Kidney

O. Uffreduzzi has recently reported a case of epileptic seizures which came on for the first time after contusion of one kidney. The patient apparently had been healthy before, with nothing to indicate a predisposition to nervous trouble. The convulsions were at first localized, but gradually became general, with loss of consciousness. The removal of the peripheral focus, the displaced and cystic kidney, was followed by a complete cure of the reflex epilepsy. Even if this had failed to cure, the assumption of reflex epilepsy was unmistakably correct; various other factors might have cooperated in the irritation entailing the seizures. Cicatricial changes or other central or peripheral cause might keep up a tendency to epileptic seizures even after removal of the primary cause. The foregoing is from an abstract in *Pathologica*, 1916, **7**, 265.

Current Comment

METAL MINE ACCIDENTS DURING 1915

While the number of men killed in the metal mines of the United States in 1915 was less than in 1914, the fatality rate was slightly higher. In 1915, there were among 152,118 men employed, 553 men killed, a rate of 3.64 a thousand; while in 1914, out of 158,115 men employed, there were 559 fatal accidents, a rate of 3.54 a thousand. Among the 202,000 men employed in metal mines and in metallurgical plants, there were in 1915, 35,295 nonfatal injuries, 35 of which resulted in permanent total disability, 574 in permanent partial disability, 7,242 involved a loss of more than fourteen days' time and 27,144 were responsible for a loss of from one to fourteen days. The rate of nonfatal injuries was 232 a thousand, as compared with 191 for 1914. This increase in the injury rate is attributed by the Bureau of Mines, not to an actual increase in the number of accidents, but rather to the fact that better and more complete reports are secured each year. The occurrence of over 35,000 disabling injuries in one year among 200,000 employees, nearly 8,000 of which resulted in a loss of more than two weeks' time, is significant and interesting, in view of the present widespread discussion of social insurance. Eight thousand accidents with a minimum of two weeks' incapacity would amount to 16,000 weeks or 96,000 working days lost. When to this is added the loss from 27,144 minor injuries with an average loss of seven days each, amounting to 190,000 days, we have a total loss from nonfatal injuries of 286,000 working days a year in this industry alone.

NEW FACTS ABOUT PHOSPHATIDS

The phosphatids or phospholipins are the fatty substances which yield, on decomposition, phosphoric acid and fatty acids along with certain nitrogenous bases. Lecithin is the most familiar substance of this group of lipoids; another member, kephalin, has lately come into greater prominence than it has heretofore held as the result of its probable relation to the coagulation of the blood. Ever since Hoppe-Seyler pointed out that lecithin-like substances are probably present in all living cells, more or less attention has been focused on this group of compounds. It is fifty years since Diaconow[1] suggested the probable chemical structure of the lecithin of egg yolk; yet the exact structural make-up of this compound is not completely solved today. Despite this, the phosphatids have played a prominent part in a variety of physiologic speculations in respect to vital phenomena. Their physical texture and tendency to form emulsion-like solutions have given them significance in the physical phenomena of protoplasm. They are doubtless concerned in some of the reactions of immunity, such as the Wassermann test for syphilis and other changes involving the process of hemolysis. They may unite with toxins and enzymes so as to facilitate or retard biochemical reactions. Thus the phosphatids have attained a sort of scientific "popu-

1. Diaconow, C.: Ueber das Lecithin, Hoppe-Seyler's Medizinisch-chemische Untersuchungen, 1868, **3**, 405.

larity" far beyond the apparent deserts of their as yet ill defined chemical structure, so that new information regarding them is much to be desired. Not long ago we called attention to the final demonstration that at least two phosphatids are present in milk,[2] thus answering a long debated question as to whether or not these lipoids are actually represented in this important food. Osborne and Wakeman,[3] to whom this information is due, have now furnished proof that all of the phosphatids present in cow's milk are associated in some way with protein. It is not unlikely that such combinations, which have long been known in the so-called "lecithalbumin" of the egg yolk, represent the form in which the phosphatids primarily exist in the living protoplasm. Indeed, there is reason to believe that the proteins of the blood are engaged in similar combinations.

SECRECY, THE FUNDAMENTAL

The Proprietary Association is the "patent medicine" organization of the United States, and its devious methods have been referred to many times. Samuel Hopkins Adams in the "Great American Fraud" series turned the light on the activities of the concern in a general way, while Mark Sullivan in "The Patent Medicine Conspiracy Against the Freedom of the Press" gave specific instances of its tricky methods. The Proprietary Association used to publish annual reports giving a list of its members and representatives, as well as of its associate members and the names of the concerns these members represented. Apparently, it no longer does so and the membership of the Proprietary Association seems to be a close secret. After each annual meeting the drug journals usually publish the list of newly elected officers, and that is about the extent to which the public is given any hint as to who comprise this "patent medicine" organization. The Proprietary Association has claimed to be doing some house-cleaning — Heaven knows it is needed! — within its own ranks. As there is no possible way of checking up on the question, it is a safe claim to make. If a "patent medicine" faker is "caught with the goods" the Proprietary Association can conveniently disown any connection with the guilty party. It is a fitting commentary on much of the "patent medicine" business that the organization which represents it should be so ashamed of its own membership that it is unwilling to make it public. Secrecy in composition! This is the watchword of the "patent medicine" industry, not only as it applies to its products, but also as it applies to its official organization!

2. The Lecithins of Milk, editorial, THE JOURNAL A. M. A., Nov. 13, 1915, p. 1734.
3. Osborne, T. B., and Wakeman, A. J.: Some New Constituents of Milk, Second Paper, The Distribution of Phosphatides in Milk, Jour. Biol. Chem., 1916, **28**, 1.

A Sad Commentary.—It is a strange commentary on man that his greatest gifts for good are so grossly neglected. The church's flagging interests must be kept alive by quasi-secular amusements, angel cake and church suppers—while the tuberculosis campaign subsists on the Red Cross stamp and the small change which seductive, begging letters may withdraw from a reinforced pocket.—*Bull.*, Newark (N. J.) Dept. of Health.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Personal.—Dr. Francis E. Harrington, U. S. P. H. S., has been granted a leave of absence by Surgeon General Blue to take charge of the health work of Jefferson County. Dr. Harrington was elected full time health officer of Jefferson County.

Health System Needed in Birmingham.—The Jefferson County Medical Society adopted resolutions at its December meeting, calling on the various woman's clubs, commercial organizations and citizens to appear before the board of revenue to urge a large appropriation for the installation of a unified health system, recommended by Surg. Carroll Fox, U. S. P. H. S.

New Officers for Mobile Society.—At the annual meeting of the Mobile County Medical Society, December 2, the following officers were elected: president, Dr. James J. Peterson; vice president, Dr. Lee W. Roe; secretary, Dr. Willis W. Scales (reelected), and treasurer, Dr. Eugene Thames. The society also recommended Dr. Paul J. M. Acker as county health officer, Dr. Eugene Thames as physician to the County Jail and Poor Asylum, Dr. Edward C. Terrill as physician to the Pine Grove Hospital, and reelected Dr. M. Toulmin Gaines as a member of the Committee on Public Health and Board of Censors.

ARKANSAS

License Revoked.—Official notice from the State Medical Board of Arkansas says that at its meeting, held Dec. 28, 1916, the license of Dr. W. C. Baldwin, Helena, was revoked for claiming through public advertising a special ability to treat and cure chronic and incurable diseases.

Hospital Notes.—The superintendent of the Sebastian County Hospital announces that accommodations for twenty-five additional patients are now ready. The third floor of the building has been remodeled, so that it has five five-room wards, an operating room and sterilizing room.

State Health Board Appointments.—December 30, Governor Hayes reappointed Drs. Burrell A. Fletcher, Augusta, and Henry L. Montgomery, Gravelly, as members of the state board of health, and also named Dr. Fergus O. Mahony, Eldorado, to succeed Dr. Andrew L. Buckner, Dermott, on the board.

COLORADO

Barker in Denver.—Dr. Lewellys F. Barker of Johns Hopkins University delivered an address on "Internal Secretions" before the Medical Society of the City and County of Denver, December 26.

Personal.—Dr. George B. Packard, Jr., who for the last six months has been a surgeon in the allied service on the western war front, sailed for home, December 16.——Dr. Charles A. Powers, Denver, after a short vacation has returned to his work in an American hospital in Paris.

Public Health Administration.—In *Public Health Reports*, Dec. 29, 1916, appear the results of a study by Surg. Carroll Fox, U. S. P. H. S., of public health organization and administration in Colorado, similar to the studies made under the direction of the Public Health Service in other states. Among the recommendations made for the improvement of the health service in the state are the creation of full time instead of part time positions of secretary, medical inspector, sanitary engineer, bacteriologist and some others, the increasing of their salaries, the establishment of a well equipped laboratory, energetic efforts to secure notification of reportable diseases, and complete birth and death registration. Laws requiring this are now on the statute books. **A reorganization of the** board on a different plan is recommended, as well as increased appropriations.

DISTRICT OF COLUMBIA

Medical Examination of Schoolteachers Made Compulsory.—The board of education has promulgated rules requiring teachers in the public schools to undergo medical examinations to determine their physical fitness whenever the supervising officer immediately responsible for their work so

directs. The rules are intended primarily to provide against the continuance in school of teachers suspected of suffering from communicable diseases or of harboring infection endangering the health of their pupils.

ILLINOIS

Chicago

Clemenson's Sentence Commuted.—The sentence of imprisonment for life imposed on Dr. Haldane Clemenson eight years ago for the murder of his wife was commuted, December 26, to twenty-five years by order of Governor Dunne. With the good conduct allowance, this will allow Dr. Clemenson to be released in 1923.

Polish Physicians Elect Officers.—At the annual meeting of the Chicago Polish Medical Society, the following officers were elected: president, Dr. Wladyslaw A. Kuflewski; vice president, Dr. Anthony Balcerzak; secretary, Dr. A. Pietrzykowski (re-elected), and treasurer and editor in chief of the *Polish Medical Bulletin*, Dr. Nicholas Kalinowski (reelected).

To Combat Paralysis.—The health commissioner of Chicago has sent to the finance committee of the council a request for $500,000 to combat infantile paralysis during the coming year, in addition to the regular budget of the health department. The commissioner urges that no decrease be made in the working force or the appropriations for the health department, notwithstanding the financial condition of the city.

Contagious Disease Hospital Opened.—The new Municipal Contagious Disease Hospital was opened, January 7, when fourteen scarlet fever patients were admitted. The building is five stories in height. Four floors will be devoted, at present, to scarlet fever patients. At a meeting of the Chicago Medical Society, January 3, a resolution was adopted endorsing the recommendation that the hospital be called the Alfred C. Cotton Hospital.

The Health Record of Chicago.—In the annual report of the commissioner of health it is stated that only two cities had a lower death rate last year than Chicago. Los Angeles led with a death rate of 12.35 per thousand; New York came next with 13.88 per thousand, and Chicago followed with 14.58 per thousand. There were fewer deaths from typhoid and tuberculosis in 1916 that in any year since statistics have been kept by the health department.

Personal.—Dr. Edward K. Armstrong was selected as superintendent of the new Contagious Disease Hospital by a committee consisting of Drs. A. J. Ochsner, D. A. K. Steele, A. Augustus O'Neil and J. V. Fowler. He accepted the position and took charge of the institution, January 4.——Dr. William Healy, director of the Juvenile Psychopathic Institute, has resigned to take charge of the Judge Harvey Baker Foundation, a similar institution in Boston.——Dr. John Webster Melody resumed his series of lectures on "Moral Law in the Medical Profession," January 7, at St. Jarlath's Hall, Hermitage Avenue and Jackson Boulevard.——Dr. Charles F. Swan, for many years a practitioner of South Chicago, and who has been visiting in Vancouver, Wash., since last September, was stricken with cerebral hemorrhage, December 24.——Dr. Abraham L. Desser was seriously injured in a collision between his automobile and a street car, December 31.

INDIANA

State Health Officer Gives Luncheon.—Dr. John N. Hurty, secretary of the state board of health, gave his annual Christmas luncheon to the employees of the board, December 22.

Leprosy in Indianapolis.—A case of leprosy was reported, December 11, from the Robert W. Long Hospital, Indianapolis, the patient being a man 69 years old from Fort Branch, Ind. He is now said to be quarantined at his home in Fort Branch.

Shipwrecked.—Dr. Perry C. Traver, South Bend, has returned after three months' service in the Panama Canal Zone. Dr. Traver was a passenger on the United States Army Transport *Sumner*, which went aground off Barnegat, N. J., December 11.

KENTUCKY

Vaccination Decision.—In 1916 suit was brought by citizens of Henry County to enjoin the county board of health from enforcing an order of the county board of health requiring all teachers and pupils in the public schools to be vaccinated. In a decision by the Court of Appeals of Kentucky, printed in full in *Public Health Reports*, Dec. 29, 1916, the court held that the evidence showed that the board was justified in its order, that a matter of such vital importance to the community should not be left to the whim of individuals, and that the action of the local board of health should be sustained.

LOUISIANA

Dr. Dowling Reappointed.—Governor Pleasant has reappointed Dr. Oscar Dowling, Shreveport, president of the Louisiana State Board of Health for a term of four years.

MARYLAND

Organization of Bureau of Communicable Diseases.—The organization of a bureau of communicable diseases has been announced by Health Commissioner Blake, Baltimore. It will be in charge of Dr. John F. Hogan, and will include the health wardens, the nursing division, the tuberculosis dispensaries, school physicians, the clerk of vital statistics, the fumigation division, the complaint clerk, the tenement house division and Sydenham Hospital.

Personal.—Dr. Harry H. Johnson has been appointed superintendent of the Sydenham Hospital by Health Commissioner Blake, to succeed Dr. John F. Hogan, recently appointed second assistant commissioner of health.——Dr. Ernest Zueblin, professor of medicine at the University of Maryland, has accepted the directorship of the tuberculosis department of the medical faculty of the University of Ohio. Dr. Zueblin is a graduate of the University of Lausanne, Switzerland, having entered the institution after five years' study at Heidelberg and Zurich.——Dr. Richard E. Yellott, Fallston, is in a serious condition at the Hebrew Hospital. He is said to have taken several bichlorid tablets while despondent over continued ill health.——Dr. Simon Flexner of the Rockefeller Institute, New York, will deliver a public health lecture on "Infantile Paralysis and Its Relation to the Public Health," at a meeting arranged by the Johns Hopkins University and the Women's Civic League, December 13, in Baltimore.——Dr. John C. Grieve, chief of staff of the Battle Harbor Hospital, Labrador, delivered an illustrated address recently in Baltimore on the work of the Grenfell Mission in Labrador.——Dr. Harry L. Kolseth has been appointed health warden of the Thirteenth Ward of Baltimore, to succeed Dr. John H. von Dreele, resigned.

MISSISSIPPI

Sanitary Survey of Jones County.—The board of supervisors of Jones County will appropriate $1,600 for a sanitary survey of the county to be made in cooperation with the state board of health and the Rockefeller Foundation. The latter organization is said to be prepared to spend, if necessary, $50,000 on this work in the county.

New Secretary for State Board.—At the meeting of the Mississippi State Board of Health, January 2, Dr. Waller S. Leathers, university director of public health under the state board and connected with the board for nearly seven years, was elected secretary and executive officer, to succeed Dr. Jacob D. Gilleylen, Jackson, deceased.

New Officers.—At the quarterly meeting of the Neshoba-Winston-Newton Tri-County Medical Association, held in Newton, December 18, the following officers were elected: president, Dr. Z. Carl Hagan, Union; vice presidents, Drs. William H. Mars, Philadelphia, and Frank L. Brantley, Dixon, and secretary-treasurer, Dr. Sidney A. Majure, Union (reelected).

NEW YORK

Personal.—Dr. Marcus B. Heyman, Central Islip, Long Island, has been appointed superintendent of the State Hospital for Nervous Diseases, Little Rock, Ark., to succeed Dr. Edwin P. Bledsoe.——Dr. William J. Gabel, Syracuse, has been appointed physician to the Onondaga Reservation.

Mortality and Morbidity in Syracuse.—During 1916 there were in Syracuse 2,360 deaths, 63 of which were due to infantile paralysis. There were 229 cases of this disease. The births numbered 3,875, as compared with 3,577 for 1915, and 3,417 for 1914. The deaths for 1915 were 2,013, and for 1914 they were 2,205. The death rates for the three years were, respectively, 15.3, 13.2 and 14.3 per thousand.

Communicable Diseases.—At Cohoes during the year ending December 1, there were in the city 490 cases of communicable diseases, as follows: chickenpox, 10; diphtheria, 42; measles, 291; mumps, 1; miscellaneous, 3; scarlet fever, 57; tuberculosis, 70; typhoid fever, 11, and whooping cough, 5. The record of typhoid fever in the city during the previous

six years was as follows: 1911, 140 cases; 1912, 104; 1913, 20; 1914, 13; 1915, 16, and 1916, 11 cases. There was no poliomyelitis in the city during the year.

County Tuberculosis Hospitals.—Nassau County has contracted to purchase a 100-acre tract of land near Farmingdale, L. I., and has issued bonds to meet the cost of site and buildings for a county tuberculosis hospital.——In Broome and Chautauqua counties sites have been selected for hospitals and in Chenango County construction of a new hospital has been begun.——Plans for the new Niagara County Hospital have been filed with the state commissioner of health for his approval.——In Rensselaer, Warren and Livingston counties appropriations of $150,000, $50,000 and $35,000, respectively, were carried at the polls last November and the boards of supervisors are now considering sites. In Rensselaer County the Albany Railroad has offered to give $150,000 toward the purchase of a site.——Rocky Crest, the tuberculosis sanatorium for Cattaraugus County, recently opened, is in the town of Olean, between Olean and Rock City. The institution has accommodation for twenty-two patients, and Dr. Edward Torrey, Olean, is the superintendent.

New York City

Deaths from Influenza.—Influenza was prevalent during December, and for the week ending December 16 there were 254 deaths from this and other respiratory diseases.

Institutions Must Report Puerperal Septicemia and Suppurative Conjunctivitis.—The health department will hereafter prosecute all violators of the Sanitary Code, which requires reports from institutions of all cases of puerperal septicemia and suppurative conjunctivitis under their care.

Sweeping of Sidewalks Regulated.—The board of health has added a section to the Sanitary Code under which householders are held responsible for the cleanliness of their sidewalks. All dirt must be swept up and removed. Sweeping into the gutters is prohibited except between 6 and 8 in the morning.

Free Dental Clinic for Children.—The New York College of Dentistry announces that it will hold a free dental clinic at 205 East Twenty-Third Street, on Saturday afternoons, for children between the ages of 7 and 14. There will be ninety chairs available. This is the only free dental clinic now maintained by a dental college in this city.

Personal.—Dr. William C. Woolsey, Brooklyn, who has recently returned from service on the western war front in France, delivered an address before the Flatbush Medical Society, recently, on "Surgical Treatment of Infection in the French Army."——Dr. E. P. Roberts, New York, has been appointed a member of the New York Board of Education.

Alumnae to Meet.—The Alumnae of the Woman's Medical College of the New York Infirmary for Women and Children will have a reunion dinner at the McAlpin Hotel, Monday evening, June 4, during the week of the meeting of the American Medical Association. Further information may be obtained by communicating with the secretary of the Reunion Committee, Dr. Ethel D. Brown, 26 Gramercy Park.

Fund for After-Care.—Health Commissioner Emerson has turned over to the New York Committee on After-Care of Infantile Paralysis $39,287.60 to be added to the fund of $250,000 which the committee started out to raise. This sum is the unspent balance of contributions made in August, 1916, on an appeal by the health department for funds to purchase braces and other appliances for children crippled by infantile paralysis.

Bronx Doctors Raise Fees.—The Bronx County Medical Society announces that physicians of the Bronx have adopted a new schedule of fees, under which night calls or emergency calls during the day will be $4. Calls during office hours requiring a doctor to leave his office before his accustomed time will be $3. Day calls will be $2, and office calls not less than $1. A like charge will be made for information given over the telephone.

Institute Votes Special Compensation.—The trustees of the Rockefeller Institute for Medical Research, in consideration of the decrease in the purchasing power of fixed salaries caused by the increased cost of living, voted additional and special compensation equal to 15 per cent. of the current annual salary to be paid to each regular officer and employee of the institute, it being understood that this is not an increase in salary and does not create a precedent for the future. Employees who have served less than one year are to be paid 15 per cent. of the amount actually received up to the last day of December, 1916.

City's Death Rate for 1916.—Notwithstanding the epidemic of influenza and infectious colds, and the epidemic of poliomyelitis, during 1916, the death rate for the year is the lowest on record, 13.89 per thousand. In 1900 the death rate was 20.57, and in 1910, 16.00. This lowering of the death rate has been accomplished through the reduction in infant mortality. In 1910 the death rate per thousand infants born was 125.6; during 1916 it was 93.1. The death rate from typhoid in 1910 was 0.12, and in 1916, 0.04. In 1912 there were seventy deaths from poliomyelitis; in 1913, fifty-four; in 1914, thirty-four; in 1915, thirteen and in 1916, 2,248. The death rate from pneumonia in all forms was, in 1913, 0.13, and in 1916, 0.14. In 1900, the death rate from tuberculosis was 2.37; in 1910, 1.81 and in 1916, 1.50. The common infectious diseases of childhood have all shown a remarkable decrease, while the diseases of adult life, organic heart disease, nephritis and cancer, show proportionately more deaths than they did ten years ago. The marriage rate for the year was 9.78, as against 9.68 for 1910 and 9.33 for 1915. A study of the marriage, death and birth rates of the past ten years has convinced the recorder that the estimated population of the city, 5,602,841, is approximately correct.

NORTH CAROLINA

District Society Meeting.—At the annual meeting of the Fourth District Medical Society, held in Wilson, the following officers were elected: president, Dr. Kinchin C. Moore, Wilson; vice presidents, Drs. James C. Grady, Kenly, and Edmund S. Boice, Rocky Mount; secretary, Dr. Charles L. Swindell, Wilson, and treasurer, Dr. Henry B. Best, Wilson.

Secret Medicine and Liquor Business.—The January issue of the *Bulletin of the State Board of Health* is devoted entirely to the secret medicine business. It is hoped that the next legislature, encouraged by the prohibition forces of the state, may enact legislation relative to the sale of secret remedies which have become so frequently cloaks for the sale of diluted alcohol in the prohibition states of the South.

OKLAHOMA

Endorse University Hospital.—At the meeting of the Tulsa County Medical Society at the Oklahoma Hospital, December 18, a resolution was adopted to endorse the efforts of the administration to build and equip a hospital at Oklahoma City, to cost $200,000 and to be conducted under the supervision of the medical department of the state university.

Personal.—Dr. Pleasant M. Haraway, Marlow, was recently injured by a fall downstairs.——Dr. Horace Reed, Oklahoma City, has recovered after an operation for appendicitis.——Dr. John H. Harms and wife were recently injured when their automobile was driven into an open bridge.——Dr. Albert C. Hirschfield, Oklahoma City, who is stationed on the border with the Oklahoma militia, recently fractured his thigh.——Dr. Welcome B. Tilton, Clinton, has been appointed physician to the Uintah and Ouray Indian reservation, at Fort Duchesne, Utah.——Dr. James G. Rafter, Muskogee, city physician, was severely injured when his automobile was struck by a street car.

OREGON

New Hospital Assured.—The department of medicine of the University of Oregon has succeeded in raising, by subscription, the $25,000 necessary to secure the $50,000 appropriated by the Oregon legislature a year ago. This sum is to be expended in building a hospital on the medical school's new campus on Marquam Hill, overlooking Portland.

New Health Board Officers.—At the annual meeting of the state board of health, held in Salem, December 21, Dr. Alvane C. Seely, Roseburg, was elected chairman, and Dr. David N. Roberg, Portland, was reelected secretary and state officer. One of the most important features of the session was the subdivision of the board of health registration districts of the state under the acts of 1915. Two hundred and forty-eight subdivisions were made under this act.

New Officers.—The Portland City and County Medical Society at its annual meeting, December 20, elected the following officers: president, Dr. Joseph M. Short; vice president, Dr. Clarence J. McCusker; secretary, Dr. J. Guy Strohm (reelected), and treasurer, Dr. Katherine C. Manion (reelected).——At the annual meeting of the Central Willamette Medical Association, held in Albany, December 7, Dr. James H. Robnett, Albany, was elected president; Dr. Edward Bennett, Monroe, vice president, and Dr. Gerald E. Riggs, Albany, secretary-treasurer.

PENNSYLVANIA

Health Commissioner's Secretary Resigns.—Mr. H. Lindley Hosford, secretary to Dr. Samuel G. Dixon, state commissioner of health, has resigned to take charge of an educational campaign to be conducted in New York state.

Smallpox Epidemic.—Sporadic cases of smallpox have been reported from Allegheny County for several weeks, and in the last two days three or four cases have been reported. Assistant Chief Medical Inspector Hull of the state health department has been sent to Pittsburgh. Two thousand five hundred notices were sent to physicians, school boards, health boards and large employers of labor, and vaccination under the direction of the department of health has been started on a large scale.

Personal.—Dr. William H. Robinson, Roaring Springs, fell on a pavement, December 13, sustaining a concussion of the brain. He is under treatment in the Mason Hospital.——Dr. Walter Lathrop was reelected surgeon and superintendent of the Hazleton State Hospital for the twentieth time, December 8. Dr. Robert A. Gaughan has been reelected assistant superintendent.——Dr. William S. O. Sherman, Pittsburgh, delivered an illustrated address before the Mahoning County Medical Society, Youngstown, Ohio, on "The Methods of Wound Treatment and Sterilization as Practiced in the French Army."

Philadelphia

Inspection Force Reduced.—Because their services were no longer required, twenty-seven medical inspectors and thirty-two nurses, engaged by the bureau of health last summer during the prevalence of anterior poliomyelitis, have been discharged.

Professorship Endowed.—Miss Anna J. Magee has presented to Jefferson Medical College $150,000 to endow the Magee professorship of the practice of medicine and clinical medicine. Dr. Thomas McCrae has been appointed to the newly endowed chair.

After-Care of Paralysis Victims.—The Emergency Aid organization has asked for $20,000 to carry out the after-treatment of 492 children crippled by poliomyelitis during 1916. Many of the victims need expensive braces and appliances. Three hundred are receiving dispensary treatment, while the other 192 are being treated at hospitals.

Personal.—Dr. Richard M. Pearce, Jr., of the University of Pennsylvania will sail from New York, January 15, to make a medical survey of the Argentine Republic and Uruguay.——A fire in the home of Dr. William W. Keen, January 2, caused much excitement, but little damage.——Director Wilmer Krusen of the Department of Public Health and Charities was presented with a large grandfather's clock by the chiefs of bureaus and the employees of the department.

Teaching Force Depleted by Pneumonia.—Pneumonia and grip have so depleted the teaching force of the Philadelphia public school that the entire substitute list has been exhausted and thirty-eight classes are without teachers. Reports of deaths from pneumonia during the last two weeks show the epidemic thus far has proved more fatal to adults than to children under 16. There were 167 deaths from lobar pneumonia, as compared with sixty deaths from bronchial pneumonia.

Medical Institutions.—An addition to Bryn Mawr Hospital is to be two and one-half stories in height, and will be of stone.——A union between the Child Federation and the Public Education and Child Labor associations was formed, January 1, to be known as the Child Federation. The offices will be in the Witherspoon Building. Albert Cross, executive secretary of the Child Federation will be managing director and secretary of the combined organization. It is hoped to reduce administration expenses so that more money will actually go into the work among children.

Officers Elected.—At the meeting of the Section on Otology and Laryngology, College of Physicians, Dr. George C. Stout was reelected chairman, and Dr. George M. Coates, clerk, for the ensuing year.——The West Philadelphia Medical Association has elected the following officers for 1917: president, Dr. William S. Newcomet; vice president, Dr. Charles E. Price; secretary, Dr. Henry G. Munson; treasurer, Dr. Edmund L. Graf, and additional members of the board of directors to serve three years, Drs. Aaron L. Bishop, Seth A. Brumm, George F. Levan and Justus Sinexon.——At the meeting, held January 3, the following officers and elective committees were chosen by the College of Physicians of Philadelphia for 1917: president, Dr. Richard H. Harte; vice president, Dr. William J. Taylor; censors, Drs. James Tyson, William W. Keen, George E. de Schweinitz and Thomas R. Neilson; secretary, Dr. Francis R. Packard, and treasurer, Dr. John B. Roberts.

VIRGINIA

Marine Hospital for Norfolk.—Hon. E. E. Holland, M. C., introduced a bill in the House of Representatives, December 21, appropriating $500,000 for a marine hospital at Norfolk.

Memorial to Dr. Johnston.—The Richmond Academy of Medicine and Surgery, December 23, adopted memorial resolutions regarding the death of Dr. George Ben Johnston.

Personal.—Dr. Hampden A. Burke, Petersburg, has been appointed a member of the State Board of Medical Examiners for the Fourth District, succeeding the late Dr. Otho C. Wright, Jarratt.

Medical Society Organized.—The Bath County Medical Society having been granted a charter by the Medical Society of Virginia, a meeting for permanent organization was called at Hot Springs, December 27, at which, Dr. Lanier D. Pole, Hot Springs, presided as temporary chairman and Dr. Guy Hinsdale, Hot Springs, was temporary secretary.

Contract for Hospital Awarded.—The contract for the erection of the new negro pavillion of the Memorial Hospital, Richmond, has been awarded. The building will cost, when completed and equipped, about $175,000. It is expected that it will be finished by November 1. It is to be seven stories and a basement in height, and will contain accommodation for 146 patients, forty in private rooms and 106 in wards.

New Officers.—At the annual meeting of the Richmond Academy of Medicine and Surgery, December 12, the following officers were elected: president, Dr. Greer Baughman; vice presidents, Drs. Claude C. Coleman, William R. Weisiger and Marvin E. Nuckols; secretary, Dr. Mark W. Peyser (reelected for the twenty-fourth consecutive term); assistant secretary, Dr. Emmett H. Terrell, and treasurer, Dr. James H. Smith, all of Richmond.——At the fifty-fifth annual session of the South Side Virginia Medical Association, held in Petersburg, December 12, the following officers were elected: president, Dr. Joel Crawford, Yale; vice presidents, Drs. Fletcher J. Wright, Petersburg; James H. Hargrave, Hopewell, and Edgar W. Young, McKenney, and secretary-treasurer, Dr. Emmett F. Reese, Courtland. Hopewell was selected as the next place of meeting.

GENERAL

Physical Directors Elect Officers.—At the meeting of the Society of Directors of Physical Education and Colleges, held in New York, December 29, Dr. Joseph E. Raycroft, Princeton, N. J., was elected president; Dr. Edwin Fauver, Rochester University, vice president, and Dr. Paul C. Phillips, Amherst, Mass., secretary-treasurer (reelected).

Big Four Surgeons Hold Meeting.—At the annual meeting of the Big Four Railway Surgeons' Association, held in Cincinnati, December 14, the following officers were elected: president, Dr. Granville Reynard, Union City, Ind.; vice presidents, Drs. Edward R. Henning, Bellefontaine, Ind.; James T. Musselman, Paris, Ill., and Adoniram J. Banker, Columbus, Ind., and secretary-treasurer, Dr. William A. Ewing, Dayton, Ohio.

Tri-State Physicians Meet.—At the thirteenth annual session of the Tri-State Medical Society of Arkansas, Louisiana and Texas, at Texarkana, Ark., December 19, Shreveport, La., was selected as the next place of meeting, and the following officers were elected: president, Dr. Jacob M. Bodenheimer, Shreveport; vice presidents, for Arkansas, Dr. Thomas F. Kittrell, Texarkana; for Louisiana, Dr. Thomas E. Wright, Monroe, and for Texas, Dr. Charles M. Rosser, Dallas, and secretary-treasurer, Dr. Edwin L. Beck, Texarkana.

Large Amounts Needed for Charities.—A campaign is in progress to raise $150,000 to enlarge the Norwegian Lutheran Deaconess Home and Hospital, Chicago.——Nearly $2,500,000 for the relief of Jewish war sufferers in Europe was pledged at a mass meeting in Carnegie Hall, New York, December 21.——Jewish women of the United States, under the leadership of Hadassah, have inaugurated a campaign to raise $100,000 for a medical unit to be dispatched to Palestine to combat infectious disease and to improve sanitary conditions.

Elections in Surgical Societies.—At the annual meeting of the Southern Surgical and Gynecological Society, held in White Sulphur Springs, W. Va., December 13, Dr. William

D. Haggard, Nashville, was elected president. The society will meet next year at St. Augustine, Fla.——At the twenty-sixth annual meeting of the Western Surgical Association, held in Minneapolis, December 16, the following officers were elected: president, Dr. Leonard Freeman, Denver; vice presidents, Drs. Joseph Ransohoff, Cincinnati, and Roland Hill, St. Louis, and secretary-treasurer, Dr. Arthur T. Mann, Minneapolis. Omaha was selected as the next place of meeting.

Civil Service Examination.—The United States Civil Service Commission announces an open competitive examination for assistant epidemiologist (male), to be held January 30. From the eligible list certification will be made to fill the vacancy in the Public Health Service, with a salary ranging from $2,000 to $2,500 per year. Applicants must be citizens of the United States, between 23 and 40 years of age, graduates of medical schools of recognized standing and must have had at least three years' experience in epidemiologic work under federal, state or local authorities, and experience in laboratory technic with special reference to malaria and typhoid fever.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Luke's Hospital, New York, $5,000 by the will of Mary C. Elmendorf.

Flagler Hospital, St. Augustine, Fla., Germantown (Pa.) Dispensary and Hospital, Morristown (N. J.) Hospital; Babies Hospital, New York, and St. Mary's Hospital for Children, New York, each $100,000 and St. John's Guild, New York, $50,000 by the will of Mrs. Charles W. Harkness.

Hahnemann College and Hospital, Philadelphia, a bequest of $40,000 by the will of Marcus N. Darr, Buffalo, N. Y.

Exeter (N. H.) Cottage Hospital, a bequest of $10,000 by the will of Abner L. Merrill, Exeter.

Children's Hospital, Milwaukee, a donation of $150,000 from Ferdinand Schlesinger, contingent on the raising of a like sum by the hospital association, and $5,000, the receipts of a Horse Show, held in Milwaukee, December 20.

New Journal Issued.—The Rhode Island *Medical Journal*, owned and published by the Rhode Island State Medical Society, has issued its first number under date of January, 1917. This new state journal succeeds the *Providence Medical Journal* published by the Providence Medical Association. It will be issued monthly instead of bimonthly. On an editorial page of this first issue it declares that "it is a source of satisfaction in which every reader can share that the advertising pages of this journal are as clean as those of any medical publication in the country." The *Providence Medical Journal* first appeared in January, 1900. It has been edited during the sixteen years of existence by Drs. George S. Hershey, F. T. Rogers and J. W. Leech. The editor of the new journal is Dr. Roland Hammond. On the editorial staff are Drs. F. T. Rogers, J. W. Leech, Alexander M. Burgess and John E. Donley. Dr. J. F. Hawkins is the business manager.

Wellcome Prizes.—The Association of Military Surgeons of the United States announced, January 5, the results of the Henry S. Wellcome prize competition. A gold medal and $300 were awarded to Capt. Mahlon Ashford, M. C., U. S. Army, for his essay entitled "The Most Practicable Plan for the Organization, Training and Utilization of the Medical Officers of the Medical Reserve Corps, of the U. S. Army, and of the Medical Officers of the Officers' Reserve Corps of the U. S. Army, in Peace and War." Asst. Surg. Gen. William Colby Rucker, U. S. P. H. S., was awarded a silver medal and $200 for his essay, "The Influence of the European War on the Transmission of Infectious Diseases, with Special Reference to Its Effect on Disease Conditions in the United States." Lieut. Henry C. Coe, M. R. C., U. S. Army, New York, and P. A. Surg. James R. Hurley, U. S. P. H. S., each received honorable mention and a life membership in the association.

Fraudulent Drug Traffic Checked.—Fraudulent traffic in imitations of certain synthetic drugs used extensively by physicians has been checked through the joint action of federal, state and municipal officials, according to the annual report of the Chief of the Bureau of Chemistry, United States Department of Agriculture. Because of the high prices demanded for such drugs, cheap imitations, with little or none of the therapeutic properties of the genuine, have been put on the market under the names and labels of the real drugs. Shipments were seized, and a number of individuals were prosecuted successfully, under the Federal Food and Drugs Act, and indictments were procured under the postal laws, but the traffic could not be wholly suppressed under the federal laws, nor could all offenders be reached. The department of agriculture thereupon laid the matter before the state and municipal officials, with the result that many prosecutions were instituted and seizures made by them. Ultimately, through joint action, the traffic was suppressed.

Conference on Medical Preparedness.—At the request of the Council of National Defense and the secretary of war, deans and representatives from more than eighty medical schools of the country convened in Washington, January 6. The preliminary meeting was called to order by Dr. Franklin H. Martin, Chicago, who stated that the object of the meeting was to agree on some basis of cooperation between the medical schools of the country and the army and navy, whereby the depleted medical branches of the service might be recruited to full strength from the eligible graduates of the medical schools this summer. Dr. Edward Martin of the University of Pennsylvania was called to the chair and introduced Surgeons-General Gorgas and Braisted, who set forth the needs of the army and navy medical departments. Plans for courses on military and naval surgery were presented by Col. William H. Arthur, director of the Army Medical School, and Surg. Edward R. Stitt of the Navy Medical School. The curriculum provides for two lectures a week, the course to begin on February 1. Dr. Victor C. Vaughan of the University of Michigan presented a resolution favoring universal military training and petitioning the secretaries of war and of the navy to supply the medical schools with instructors on medical surgery and sanitation. Dr. Arthur A. Law of the University of Minnesota presented a resolution petitioning Congress to modify the army act of June 3, 1916, so as to make express provision for the detailing of medical officers of the army as instructors in military surgery and hygiene in medical colleges. Both of these resolutions were adopted. Major Robert E. Noble of the army presented the needs of the Medical Corps and stated that by July, 1920, the army would need 1,110 medical officers to complete its full quota. In the afternoon, the members of the conference were received by the president and secretaries of war and of the navy. Secretary Baker welcomed the officers and thanked them for their interest in medical preparedness.

FOREIGN

No Importation of "Patent Medicines" Into Germany.—The *Münchener medizinische Wochenschrift* cites a recent official order to the effect that the decree of Feb. 25, 1916, prohibiting importation of unnecessary articles (*entbehrliche Gegenstände*), applies until further notice to proprietaries (*Geheimmitteln*).

Journal Founded as Official Organ of Welfare Work for Disabled Soldiers.—The affiliated agencies throughout the German empire working to improve the condition of those maimed and crippled by the war have combined and the central board is issuing a monthly to serve as the forum for all matters of the kind and possibly to serve later as a general forum for welfare work of all kinds. The editorial staff consists of A. Liebreich, Magistratsrat in Berlin, and W. Gerth, Amtsrichter. L. Voss of Berlin is the publisher; the yearly subscription is about $4.

Public Education on Disease.—The *Deutsche medizinische Wochenschrift* states that even during the war the demands continue for loans of the collections at the central headquarters at Berlin of the medical postgraduate instruction system. Many requests come from the countries now occupied by troops. The collections are loaned free of charge for popular lectures given by nurses, hygienists and others, as well as by physicians. Lantern slides and wall pictures are most in demand, especially sets of slides on venereal diseases, bacteriology, care of the sick, anatomy, prophylaxis and care of the health in general, tuberculosis, epidemics, etc. A special catalog is sent on demand. The headquarters of the postgraduate work are at the Kaiserin Friedrich-Haus, Luisenplatz 2, Berlin.

Alvarenga and Jubilee Prizes Awarded in Sweden.—The Alvarenga prize is awarded annually by the Swedish Medical Association. The 1916 prize was given to Dr. E. Nilsson for his comprehensive study of the physical development and fitness for military service of the young men of Sweden between 1861 to 1913. The association distributed eleven other prizes. The jubilee prize was given to H. B. Lundborg for his medical-biologic study of generations of certain families in Sweden totaling 2,232 members. He traced the working of the mendelian laws of heredity through nearly 200 years. A

work by Lundborg on this topic of race hygiene and its importance in modern culture was published in the *Journal of Nervous and Mental Disease*, 1912, No. 11, p. 39. THE JOURNAL, June 15, 1912, p. 1890, also summarized some of his research on deafmutism in 414 families.

CANADA

Infantile Paralysis Disappearing in Ontario.—Only five cases of infantile paralysis with one death were reported in December in the Province of Ontario, as compared with seventy-six cases and seven deaths in September, thirty-one cases and seven deaths in October, and ten cases and two deaths in November.

Medical Inspection of Schools in Toronto.—The vote on the amalgamation of the medical inspection department of the Board of Education, Toronto, with the Department of Public Health, January 1, resulted in a majority of nearly 14,000 for the amalgamation. It will be necessary for the Toronto City Council to secure the sanction of the Ontario legislature to the vote of the people before amalgamation is finally effected. Last year the city council unanimously approved of the amalgamation. The vote for amalgamation stood as 3½:1.

Personal.—Col. James A. Roberts, Toronto, in command of the University of Toronto Base Hospital, Saloniki, and Col. Herbert S. Birkett, Montreal, have been made Companions of the Bath.——Capt. J. Harris McPhedran, Toronto, on leave of absence, has sailed for England.——Capt. D. Edwin Robertson, Toronto, who has been on active service for over two years, has arrived home and will reenter professional life. He will be first assistant to Dr. W. Edward Gallie, who has been chief surgeon at the Hospital for Sick Children, Toronto, since the departure of Dr. Clarence L. Starr for special operative work in London.——Dr. Walter W. Wright, Toronto, has enlisted for overseas service.

University News.—The Senate of Queen's University, Kingston, Ont., has issued a memorandum covering its objections to the action of the University of Toronto in deciding to establish in 1918 a six-year academic course in medicine. A conference had been held between representatives of the two universities but no other universities interested in Canada had been asked to participate in that conference. Queen's University says that the proposals come at a time when there is an unusual demand for the services of medical men from the British and Canadian governments, and that the great need for medical men will not immediately cease when war is over.

Colonel Bruce Not Upheld.—The official report of the Board of Inquiry into the report and charges of Col. Herbert A. Bruce, Toronto, who went overseas last July, deputed by the Canadian government, or the Minister of Militia of that day, as Inspector-General, to make an exhaustive inquiry into the condition of the army medical services of Canada and the Canadian hospitals abroad, has just been made public by the Canadian High Commissioner. It upholds Surg.-Gen. G. Carleton Jones, and states that the charges made by Colonel Bruce have not been substantiated; nor does the Board of Inquiry consider that the changes recommended in Dr. Bruce's report are necessary or advisable. The announcement is made in the public press that Colonel Bruce is returning to Toronto, and that Surgeon-General Jones will at once reassume his command.

Workmen's Compensation and the Doctors' and Hospital Fees.—Representatives of the Ontario Medical Council, the Ontario Medical Association and the Academy of Medicine, Toronto, joined with representatives of the labor interests on January 5 to discuss the payment of doctors' and hospital fees by the Workmen's Compensation Board, before the Private Bills Committee of the Ontario legislature. The manufacturing interests were also represented. Dr. Edmund E. King, president of the Ontario Medical Council, presented the case for the physicians and stated that the profession was far worse off under the commission than previously, when practically all employers paid the professional bills of employees injured in their work. The labor interests unanimously supported the physicians in asking that these bills be paid by the commission. The manufacturers, of course, opposed the proposition, as it would mean a greater assessment on the industries. The government made no announcement as to its intention to amend the bill in the direction sought, but the prime minister of the province appeared sympathetic. The total number of accidents in the province during the past year was 26,092.

LONDON LETTER

LONDON, Dec. 18, 1916.

The War

FOOD CONTROL

The continuance of the war has created some difficulty with regard to the supply of food, but this is much less acute and has developed much later than in Germany. A food controller has been appointed, and the following legislation is expected soon: 1. Meat. Institution of a compulsory meatless day; Thursday will probably be the day selected. On that day it will be unlawful for any person to sell or consume, either in places of public eating or in private houses, meat, game and poultry. It is understood that fish will not be included in the order. 2. Sugar. "Rationing" by the state, probably by a system of tickets. There is enough sugar to go round at present; it is the old system of distribution that is at fault. 3. Bread. Maize, barley and oats to be included among the ingredients for baking. Maize blends most easily, barley is the most palatable, and oats the most nutritious of the three. There may not be much maize to spare, as it can be put to other and even better uses in our present situation. 4. Potatoes. A big program of saving to be undertaken to insure next season's supplies. 5. Pigs. As urgent a matter as potatoes, both provide a great part of the staple food of the working classes. Special steps are to be taken to increase largely the number of pigs in this country. The space to be allotted to the transport of tea will in future be much curtailed.

VITAL STATISTICS

Vital statistics during the disturbing influence of the greatest of all wars are of special interest. The quarterly return of the registrar general for the three months ending with September have just been issued. The birth rate has shown a slight rise. It is now 21.7 per thousand of the population, as compared with 19.5, the rate in the fourth quarter of 1915, which was described as the lowest birth rate recorded in any quarter since the establishment of civil registration. The deaths registered amounted to 102,457 civilian and noncivilian. This is a rate per thousand of 11.2. Infant mortality, measured by the proportion of deaths under 1 year to registered births, was equal to 79 per thousand, being 41 per thousand below the average in the ten preceding third quarters, and equal to the lowest recorded quarterly rate, namely, that for the September quarter, 1912.

Abolition of Compulsory Latin for Medical Students

The preliminary examination which every youth must pass before being registered as a medical student included Latin as a compulsory subject. The modern tendency to exalt science at the expense of the classics has brought about a position which has compelled the General Medical Council no longer to require a knowledge of Latin—which was usually very elementary—by medical students. For fourteen years the University of London has not required Latin for its matriculation examination, and within the last two years the Universities of Liverpool, Leeds, Sheffield and Birmingham have followed. The medical council was therefore in the anomalous position of requiring knowledge of a subject which these universities do not require of students undertaking medical or other courses. After an animated debate in which several speakers insisted on the great advantage of a knowledge of Latin to the student in his medical studies, the council decided by a majority of 21 to 12 to accept the examinations of these universities. This conclusion was something of a compromise, for Latin still remains compulsory for what are called "junior grade" candidates for admission to the medical curriculum. These are boys who usually leave school at an earlier age than the "senior grade" candidates mentioned above and do not produce, as evidence of general knowledge, certificates of examination by a university. Latin is retained as a compulsory subject for them on the ground that there is at present no satisfactory substitute for that language in the educational scheme suitable to a boy of 15. The contribution to the discussion at the medical council of a brilliant scholar in the wide sense, Sir Clifford Allbutt, is worthy of attention. He said that for years he had been against any particular subject being made compulsory for entrance. It was perfectly amazing how boys wriggle through an examination in Latin and Greek with so little knowledge of either, and the time devoted to them was not worth it. If the average man was asked to translate or go behind the Latin words he had used, it would be found they had been used in a parrot like way and learned by heart as ladies learn the names of plants. What was desired was to raise the

literary quality of teaching, which could be attained by substituting two modern languages—French and Italian or French and Spanish—for Latin, so that the students would come up with a fair amount of literary cultivation.

A Leper in a Lodging House

In the court of appeal, a point of interest to the profession has been decided. An action was brought by a lodging house keeper against a physician and a woman for fraudulent representation and conspiracy. The latter engaged rooms for her father, who was a leper and died from the disease after a year. The plaintiff alleged that she had suffered damage in consequence. In answer to her question, the leper's physician said that he was not suffering from an infectious disease but that great care should be taken. He believed that leprosy was not infectious. In answer to questions put by the judge, the jury decided that leprosy was infectious and that the defendants had by fraudulent misrepresentation induced the plaintiff to admit the leper. They assessed damages at $1,250. After argument, however, the judge held that the defendants were entitled to judgment because there was no implied term or warranty in the compact of tenancy that the leper was a fit and proper person to occupy the rooms, and that the physician was not bound in law to make any disclosure as to the condition of the patient. This judgment has been upheld by the judges of the court of appeal.

Anthrax in Shaving Brushes

An account was recently given (THE JOURNAL, Sept. 30, 1916, p. 1030) of cases of anthrax due to contaminated shaving brushes. The subject has again arisen in Liverpool, where two specimen shaving brushes infected with anthrax have been discovered. At a meeting of the Liverpool health committee, Dr. Hope, health officer, said that the hairs of which brushes were made had probably been taken from infected skins. All brushes of the kind which could be found in the city had been taken and destroyed. One of the brushes had been discovered in a curious way. A man bought it in Liverpool and used it on the way to Halifax, N. S. When he arrived there he was found to be suffering from anthrax, and the fact was reported to Liverpool. A number of the brushes had then been bought. Their origin had been traced to foreign firms on the continent.

PARIS LETTER

PARIS, Dec. 14, 1916.

The War

TREATMENT OF WOUNDS OF THE KNEE

Professor Depage of Brussels has just reported to the Société de chirurgie de Paris statistics of 124 wounds of the knee treated at the ambulance hospital "Océan," at La Panne, since Dec. 20, 1914. Eighty-three were serious cases, which he classifies in two categories: (1) wounds without large separation of the joints and without very serious lesions of the bone extremities, and (2) wounds of the joints with serious and wide lesions of the bone extremities.

These wounds have been treated in various ways. Until Sept. 10, 1915, Depage drained the joints during a longer or shorter period, after the cleansing and excision of torn tissues, making one or several dressings every day. In each instance the wound was irrigated with antiseptic solutions (oxygenated water, formaldehyd or phenol [carbolic acid]). The wounded limb was kept rigid either by a bridged apparatus or by a drain. During a second period, until July 1, 1916, Depage applied the method of Carrel after ample loosening of the joints. During a third period he practiced systematically the immediate closing of the joints of the knee despite extensive lesions of the bone. Until that time he had sutured the synovial membrane immediately only in articular wounds of the knee without lesions of the bone. After a careful dressing of the region, the wounded and bruised tissues were excised, the bullet or foreign matter removed, the joints freely washed with Dakin's solution or with ether, and the bones curetted or scraped with a gouge, a small rubber drain being left in the joints for twenty-four hours in contact with the lesions of the bone. By some means immobility was secured. When this method is employed, the temperature is generally about 37.5 C. (99.5 F.) on the evening of the operation; in two or three days it returns to normal; in eight days massage is begun with passive movements, and in fifteen days the patient is given a mechanotherapeutic course of treatment. In certain cases, however, the temperature climbs to 38 C. (100.4 F.) and even 38.5 C. (101.3 F). The local condition then dictates the course to be followed. If the joints do not show any reaction, further treatment is deferred, and order is generally restored within five or six days. If infection appears certain, arthrotomy is resorted to, and the Carrel treatment is given when the lesions of the bone are not too extensive. If, on the other hand, these lesions are serious, resection is made without delay.

The value of the three methods successively employed by Depage in the treatment of articular wounds of the knee is clearly shown in the following table:

	First Period 29 Wounds Per cent.	Second Period 32 Wounds (Carrel Method) Per cent.	Third Period 22 Wounds (Closing of Wound) Per cent.
1 Cures with restitution of movements	24.10	46.87	86.36
2 Suppurations of the knee	68.80	28.12	4.54
3 Ankylosis with or without resection	37.93	18.75	13.63
4 Amputations of the thigh	34.40	15.62	0
5 Deaths	13.88	3.06	0

TREATMENT OF WOUNDS OF THE BREAST

In accordance with an opinion still too much in vogue, it is believed that most penetrating wounds of the thorax heal without the employment of operative treatment. Drs. Combier and Murard have voiced their disapproval to the Société de chirurgie de Paris. They have shown that the death rate among the wounded so treated is considerable, at least among those with large wounds in which hemorrhage shows no tendency whatever to cease, as these patients lose too much blood. Combier and Murard have also tried to intervene in these cases by suture of the bleeding lung and suppression of the pneumothorax. In three particularly threatening cases they have employed successfully the following mode of treatment: resection, under local anesthesia, or a simple injection of morphin, of the fractured ribs on an area just wide enough to furnish ready access to the lung; exteriorization and exploration of the affected pulmonary lobe, which usually is easily performed; suture of the pulmonary wound with the aid of long U-shaped points, anchoring of the sutured wound to the interior surface of the thorax, if possible, so as to permit the lung to recuperate its play; drainage by means of a tampon, of the membrane lining the interior of the ribs. The thoracic lining could also be entirely sutured without tamponing by making an incision for breathing in case of pleural effusion. There are, however, more favorable methods, which are successful in less serious cases, such as simple occlusion of the wound with a suture, employed by old school surgeons. In wounds in which the air comes in contact with the membrane lining the interior of the ribs, it is sufficient simply to close the wound to prevent infection, treating it as a simple pneumothorax requiring rapid resorption. This procedure has often given Combier and Murard good results.

Relative to this report, Drs. Rochard, Delorme and Baudet remind us that they had ceased, long before the war, to oppose operative treatment in serious cases of wounds of the breast.

THE TREATMENT OF SHOCK IN WAR SURGERY

Professor Depage of Brussels has made a report on this subject to the Société de chirurgie de Paris. He points out that vasoparalysis constitutes one of the most important phenomena of shock. The circulatory field becomes too large for the quantity of blood in the veins, the function of the heart becomes impaired, blood accumulates in the arteries, and the blood pressure becomes lower as the extremities become cold and cyanotic. The treatment of shock calls for: (1) a special position of the patient in which the abdominal vessels are at a higher level than the heart and the brain (this necessitates merely adjustment of his bed; (2) heat; (3) restoration of blood pressure to a sufficiently high degree either by increasing the quantity of the blood fluid (injection of Locke's serum), or by determining the vascular constriction (digitalis, strychnin, camphorated oil).

VESICAL CALCULI IN WOUNDS OF THE BLADDER

Dr. Legueu, clinical professor of diseases of the urinary tract of the Faculté de médicine de Paris, has pointed out to the Académie de médecine that about one third of the wounds of the bladder develop one or more calculi within a few months. Legueu estimates that these calculi have less to do with infection than with a concomitant fracture of the pelvis, such as is found in all wounds developing calculi. While serious disorders are given attention, fragments and splinters of bone frequently fall into the bladder, so that after the healing of all exterior wounds, one finds an internal osteo-

pathic abscess visible only with a cystoscope. For some time the cavity of the bladder continues to receive from the focus of the fracture minute particles of bone which enter the bladder, causing calculi. Hence the osteovesicular abscess is the primary lesion from which complications result. Legueu has attempted operative treatment for these abscesses, but the disorders necessarily caused in healing them are very complicated and postpone the patient's recovery several months. He has relieved a patient of his calculus in a few days by lithotrity, and he advises that the abscess be permitted to close itself spontaneously.

NEEDLE WOUND OF THE HEART

Dr. Marais reported to the Société de chirurgie de Paris the case of a soldier who thrust a needle into his heart with the intention of killing himself, and who died suddenly twenty-four hours later without having shown any sign of internal hemorrhage in the meantime. At the necropsy there were found an abundant hemorrhagic infiltration in the anterior mediastinum and an infusion of 120 gm. of blood in the pericardium. In the middle of the latter infusion was found the needle which had caused death. No trace of its passage was visible on the skin. On the anterior surface of the right ventricle was a wound 4 cm. long, and 2.5 cm. in average width. It was a superficial wound above, but deep and penetrating in the lower part. This leads one to suppose that the needle after having perforated successively the thoracic wall and the pericardium (the victim was very thin), was maintained in place by one extremity in the thoracic wall, while the other extremity worked its way through the myocardium, causing a slow, insignificant hemorrhage with no clinical signs, which later suddenly became abundant and fatal. Marais was of the opinion that if the diagnosis had been made earlier, surgical intervention would probably have been successful.

Reorganization of Physical Education in Public Instruction

A commission has just been instituted at the ministry of the interior for the purpose of studying the reorganization of physical education in public instruction. Among the members of this commission are Drs. Gilbert and Weiss, professors of the Faculté de médicine de Paris, and Henri Méry, Albert Mathieu and Mosny, physicians at the hospitals of Paris.

The Decimal Classification in the Numbering of Surgical Matter

The military health service has just systematized part of its surgical matter by introducing the decimal classification at the suggestion of Mr. Paul Woog. Until recently, when a very fine catgut ligature was desired, specifications were given for "triple zero," "double zero" or "single zero," depending on whether the diameter of the catgut was 0.2, 0.3 or 0.4 mm. A silk ligature of 0.3 mm. was designated as No. 2 in the health service, and was called "zero" in the civil service. An "O" drain measured 4 mm. in exterior diameter, and a No. 6 drain, 20 mm. This illogical and complicated classification has recently been replaced by a simple and rational one: The figures adopted for catgut silk ligatures, drains and rubber tubes will designate in tenths of a millimeter the outside diameter of these objects. Thus a No. 6 ligature is six tenths, or 0.6 mm. in diameter; a No. 10, ten tenths, or 1 mm. in diameter; a No. 130 drain will be 130 tenths, or 13 mm. in diameter, etc.

Marriages

MANLEY HUNTER EAMES, M.D., Oak, Va., to Miss Mary Virgilia Warburton of Williamsburg, Va., at Richmond, Va., December 18.

ROBERT PARKE BAY, M.D., Baltimore, to Miss Nancy M. McNabb of Harford County, Md., at Baltimore, December 23.

GROVER CLEVELAND GOUDY, M.D., Canton, Ohio, to Miss Edna Amanda Hilger of Pittsburgh, December 30.

CLYDE JAMES BIBB, M.D., to Miss May Hollern, both of Portage, Pa., at Hollidaysburg, Pa., November 5.

IRVING WILLIAM FRAIM, M.D., Waltham, Mass., to Miss Leola Basley of Worcester, Mass., December 19.

GUSTAV KOLISCHER, M.D., Chicago, to Miss Juliette Lippe of New York, December 26.

FREDERICK G. FOX, M.D., to Miss Anna Kuehn, both of Chicago, December 31.

Deaths

Arthur Curtis Rogers, M.D., Faribault, Minn.; a pioneer and leader in the work for defectives; died in the University Hospital, Minneapolis, January 2, from pernicious anemia. Dr. Rogers was born near Decorah, Iowa, July 17, 1856. After graduation from Earlham College, Richmond, Ind., he taught school and then became steward of the State School for Feebleminded, Glenwood, Iowa. His interest in the work caused him to take up the study of medicine in the State University of Iowa, Iowa City, from which he was graduated in 1883. He went to Oregon as head physician and principal of the State School for Indians, Forest Grove, and two years later was called to Minnesota to become superintendent of the Minnesota School for Feebleminded and Colony for Epileptics at Faribault, a position which he held until the time of his death. The institution which then had about fifty inmates now employs about 300 teachers and attendants, cares for more than 1,600 inmates, and has been regarded for many years as one of the model institutions of the country. Dr. Rogers was a Fellow of the American Medical Association, president of the Minnesota Conference of Charities and Correction in 1898, and of the Minnesota Academy of Social Science in 1911. He was secretary and treasurer of the American Association for the Study of the Feebleminded and a member of the commission to revise Minnesota laws relating to children.

Hon. Sir Frederick William Borden, K. C. M. G., minister of militia and defense of Canada from 1898 to 1911; died at his home in Canning, N. S., January 6. He was born May 14, 1847, the son of Dr. J. and Maria F. Borden. His preliminary education was received at the University of Kings' College, Windsor, N. S., and his medical course was taken at Harvard Medical School, from which he was graduated in 1868. He was appointed assistant surgeon of the Sixty-Eighth Battalion "Kings' County" Militia in 1869, and served continuously thereafter in the militia and Canadian Army Medical Corps, of which he was, at the time of his death, surgeon colonel. In 1874, he was elected to the House of Commons from Kings' County, N. S., and has served continuously, excepting during the years from 1883 to 1886. To Sir Frederick Borden's efforts were due in a large measure, the efficient organization of the Canadian troops which was of so great assistance to Great Britain during the Boer War, in which his son, Lieut. Harold L. Borden, was killed in action.

James Henry, M.D., Orangeville, Ont.; University of Toronto, Ont., 1863; aged 73; a member and for several years vice president of the Ontario Medical Council; for more than half a century a practitioner of Dufferin County; surgeon in the Canadian militia and lieutenant colonel on the retired list of the thirty-sixth infantry; coroner for the counties of Peel, Grey, Dufferin and Wellington, and division surgeon for the Canadian Pacific Railroad; died at his home, October 29, from cerebral hemorrhage.

Carl Johann Luyties, M.D., St. Louis; Missouri Medical College, St. Louis, 1884; Hahnemann Medical College, Philadelphia, 1885; aged 56; a Fellow of the American Medical Association; a member of the visiting staff of the St. Louis Children's Hospital and St. Louis City Hospital; a specialist on diseases of children; professor of chemistry and later professor of diseases of children in the Homeopathic Medical College of Missouri, St. Louis; died at his home, December 23, from cerebral hemorrhage.

Edward Marshall Buckingham, M.D., Boston; Harvard Medical School, 1874; aged 68; a Fellow of the American Medical Association and New England Pediatric Society; instructor in diseases of children in his alma mater and for more than twenty years treasurer of the Massachusetts Medical Society; for many years secretary of the staff of the Boston City Hospital and visiting physician to the Children's Hospital; died at his home, December 23, from angina pectoris.

James Wendell Reber, M.D., Philadelphia; Beaumont Hospital Medical College, St. Louis, 1889; aged 50; a Fellow of the American Medical Association; formerly assistant physician at the State Hospital for the Insane, Norristown, Pa.; professor of ophthalmology in Temple University and the Philadelphia Policlinic; once president of the American Academy of Ophthalmology and Oto-Laryngology; died at his home in Germantown, December 30, from pneumonia.

Matthew Watson O'Brien, M.D., Alexandria, Va.; Medical College of Ohio, Cincinnati, 1876; aged 61; a Fellow of the

American Medical Association; formerly vice president of the Medical Society of Northern Virginia, and president of the Southern Railway Surgeons' Association; local surgeon for the Southern, Chesapeake and Ohio, Washington and Old Dominion and Washington Southern railroads; died at his home, December 28.

Frederick David Bentley, M.D., Portage, Wis.; Rush Medical College, 1886; aged 52; a Fellow of the American Medical Association; assistant superintendent of the Cook County Insane Hospital, Dunning, from 1889 to 1890; for several terms health officer of Portage; local surgeon to the Chicago, Milwaukee and St. Paul System; who built and maintained the first hospital in Portage; died at his home, December 23.

William H. White, M.D., Bloomfield.; University of Pennsylvania, Philadelphia, 1860; aged 79; a Fellow of the American Medical Association; president of the Bloomfield Press Company and a member of the Bloomfield Board of Education; a veteran of the Civil War, in which he served as surgeon of the Seventy-Ninth Pennsylvania Volunteer Infantry; died at his home, December 28, from pneumonia.

Miah B. Sullivan, M.D., Dover, N. H.; New York University, New York, 1880; aged 59; a member of the New Hampshire Medical Society; and formerly president of the Strafford District and Dover medical societies; for many years a member of the surgical staff of the Wentworth Hospital; once state senator; founder of the Dover *Evening Star;* died at his home, December 26.

Alexander H. Saxton, M.D., Baltimore; University of Maryland, Baltimore, 1863; aged 75; attending physician to the Baltimore General Dispensary and physician to St. Mary's Industrial House of the Good Shepherd; for ten years vaccine physician and for eight years pension surgeon; state medical examiner for the Royal Arcanum; died at his home, December 24, from heart disease.

William S. McCormick, M.D., Philadelphia; Medico-Chirurgical College of Philadelphia, 1903; aged 40; formerly a Fellow of the American Medical Association; for five years a medical inspector for the board of health of Philadelphia; formerly assistant demonstrator of anatomy in his alma mater; died in the Methodist Hospital, Philadelphia, December 30, from diabetes.

Peter Sebastian Ganz, M.D., Louisville, Ky.; University of Louisville, Ky., 1894; aged 55; a member of the Kentucky State Medical Association; and a director of the St. Lawrence Home for Boys; for several years a member of the faculty of his alma mater and a member of the staff of Sts. Mary and Elizabeth's Hospital; formerly a druggist; died at his home, December 23.

James A. Clyne, M.D., Joliet, Ill.; Albany (N. Y.) Medical College, 1886; aged 56; a Fellow of the American Medical Association; formerly president of the Will County Medical Society; local surgeon of the Chicago and Alton Railroad for twenty years, and in 1893 and 1894 health officer of Joliet; died at his home, November 8, from carcinoma of the throat.

Julius Alexander Becker, M.D., New York; New York University, New York, 1898; aged 41; a member of the Medical Society of the State of New York; professor of practical anatomy in the New York University and Bellevue Medical College; assistant surgeon to Bellevue Hospital and police surgeon; died at his home, December 25, from pneumonia.

James Graham Wittenmyer, M.D., Peebles, Ohio; Starling-Ohio Medical College, Columbus, Ohio, 1913; aged 29; a member of the Ohio State Medical Association; lieutenant in the Medical Corps of the Ohio National Guard and assigned to duty with Field Hospital No. 2, Columbus; died in the Base Hospital at Fort Bliss, Texas, December 9.

Charles N. Wyatt, M.D., Easley, S. C.; Southern Medical College, Atlanta, Ga., 1887; aged 53; a Fellow of the American Medical Association; twice president of the Pickens County Medical Society; a trustee of the Medical College of South Carolina; local surgeon of the Southern Railroad; died at his home, December 27, from chronic nephritis.

John R. Borland, M.D., Franklin, Pa.; Philadelphia University of Medicine and Surgery, 1865; aged 88; a member of the Medical Society of the State of Pennsylvania; formerly professor of theory and practice of medicine and dean of the faculty of the Georgia Eclectic Medical College, Atlanta; died at his home, December 26.

Ethelbert Fremont Geer, M.D., St. Paul; University of Vermont, Burlington, 1884; aged 58; a Fellow of the American Medical Association; formerly secretary of the Ramsey County Medical Society; for three years a member of the St. Paul workhouse board; died at his home, December 24, from cerebral hemorrhage.

Edmund Doe Spear, M.D., Boston; Harvard Medical School, 1874; aged 64; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society and American Otological Society; a specialist on diseases of the nose and throat; died at his home, December 25, from pneumonia.

George T. Thomas, M.D., Rogers, Texas; Missouri Medical College, St. Louis, 1885; aged 61; a member of the State Medical Association of Texas, and once president of the Bell County Medical Society; died suddenly at Jonesboro, Texas, December 21, from cerebral hemorrhage.

John Snyder, M.D., Mecosta, Mich.; Detroit College of Medicine and Surgery, 1886; aged 54; a Fellow of the American Medical Association; who was obliged to give up practice five years ago on account of disease of the spine; died at his home, December 11, from angina pectoris.

Kenneth Charles Richman, M.D., Philadelphia; Jefferson Medical College, 1911; aged 30; a specialist in laryngology and rhinology; a member of the staff of the Philadelphia General Hospital and Rush Hospital; died at his home, December 8, from heart disease.

Joseph Huston McKee, M.D., Carnegie, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1891; aged 54; a Fellow of the American Medical Association, and president of the Carnegie Medical Association; died at his home, December 25, from pneumonia.

E. Lloyd Irvine, M.D., San Francisco; University of Oregon, Portland, 1905; aged 33; formerly a practitioner of Portland, and a Fellow the American Medical Association; died in St. Luke's Hospital, San Francisco, December 4, from lobar pneumonia.

Benton F. Tatum, M.D., Stuart, Va.; University of the South, Sewanee, Tenn., 1900; aged 45; a member of the Medical Society of Virginia; who underwent surgical operation, recently, in Richmond; died at his home, December 29.

Cummins Butterfield Jones, M.D., Los Angeles; Miami Medical College, Cincinnati, 1873; aged 67; formerly superintendent of the Ohio Soldiers' and Sailors' Orphans' Home, Xenia; died at his home, December 23, from heart disease.

Charles C. Dellenbaugh, M.D., Portland, Mich.; University of Buffalo, N. Y., 1859; aged 82; formerly a Fellow of the American Medical Association; for more than half a century a practitioner of Portland; died at his home, December 25.

Frank Gamon, M.D., Erie, Pa.; Medico-Chirurgical College of Philadelphia, 1903; aged 36; a member of the Medical Society of the State of Pennsylvania; a specialist in anesthesia; died in Hamot Hospital, Erie, December 23.

Joseph Dobson, M.D., Fairfield, Conn.; United States Medical College, New York, 1880; aged 79; surgeon in the British army during the Boer War; died in Bridgeport Hospital, November 25, from chronic interstitial nephritis.

Norman J. Cranmer, M.D., River Falls, Wis.; Detroit Medical College, 1870; aged 80; for forty years a practitioner of Van Buren, Allegan and Missaukee counties, Mich.; died at the Hotel Gladstone, River Falls, December 7.

William J. Dillenback, M.D., Brentwood, Md.; George Washington University, Washington, D. C., 1888; aged 51; a member of the Medical Society of the District of Columbia; died at his home, December 27, from diabetes.

James W. Fitzmaurice, M.D., Chicago; Rush Medical College, 1889; aged 56; formerly a member of the Illinois State Medical Society; died at his home, December 29, from uremia.

Effa A. Osborn Norton, M.D., Chicago; Curtis Physio-Medical Institute, Indianapolis, 1896; died at her home, December 22, from diabetes.

Lothar M. Schwarz, M.D., Chicago; Jenner Medical College, 1897; aged 54; died at his home, December 21, from cirrhosis of the liver.

John Capell, M.D., Watson, Ark.; Chattanooga (Tenn.) Medical College, 1907; died in St. Joseph's Hospital, Memphis, Tenn., November 21.

Warner Lewis, M.D., Wayland, Va.; University of Maryland, Baltimore, 1867; a Confederate veteran; died at his home, December 10.

Reuben Eiseman, M.D., Latrobe, Pa.; Jefferson Medical College, 1887; aged 55; died at his home, December 13.

Eben Vernon, M.D., Los Angeles; Atlanta (Ga.) Medical College, 1859; aged 78; died at his home, December 16.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

IRON CITRATE GREEN

Report of the Council on Pharmacy and Chemistry

H. K. Mulford Company and E. R. Squibb and Sons submitted to the Council ampules containing solutions of iron citrate green. It thus became necessary to consider the eligibility of iron citrate green itself for admission to New and Nonofficial Remedies. As the rules of the Council provide that nonessential modifications of official or nonproprietary preparations will not be recognized, the above named firms were asked to state what advantages, if any, the so-called iron citrate green had over the official iron and ammonium citrate. In reply the H. K. Mulford Company wrote that it had come to the conclusion that iron citrate green and ampules thereof would undoubtedly be considered by the Council as a nonessential modification of an official product, adding:

"It seems to differ from the official ferric citrate so far as essentials go only in color, but custom, which is exceedingly hard to change in South America, demands that this green variety of ampules be used in place of the official product."

In reply to a similar letter of inquiry E. R. Squibb and Sons wrote:

"Iron citrate green (iron and ammonium citrate green) differs from the U. S. P. iron and ammonium citrate in that it contains less iron and more citric acid and more ammonium citrate than does the latter. It is of course a modification of the official salt and is supplied to meet a real demand. Its reaction is quite decidedly acid and our present stock contains Fe slightly below the U. S. P. requirements for iron, assaying 15.74 per cent. instead of 16 per cent. Fe. The tests used to control its quality are those for the official product except as before indicated, it is always acid instead of neutral, as the U. S. P. requires for that salt."

The smaller iron content (98 per cent. of the U. S. P. requirement) of the green variety referred to by E. R. Squibb and Sons is so small as to be negligible. Further, the low iron content as well as the acidity of the green salt would appear to be detriments rather than advantages. Inasmuch as no evidence has been presented to show that iron citrate green is superior in any way to the well-known iron and ammonium citrate the Council held that iron citrate green, and with it the dosage forms, was ineligible to N. N. R.

The preceding report was submitted to the Mulford Company and to E. R. Squibb and Sons for comment before publication. The former firm replied that in the present case it felt bound to supply the existing demand, the latter replied that, to give the Council its support in this matter, the sale of iron citrate green and ampules thereof would be discontinued.

MORE MISBRANDED NOSTRUMS

"GOFF'S COUGH SYRUP" AND "GOFF'S HERB BITTERS"

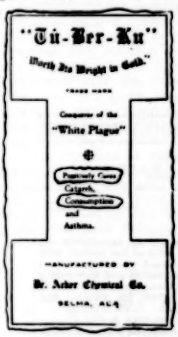
S. B. Goff & Sons Co. of Camden, N. J., were charged with shipping in interstate commerce a quantity of "Goff's Cough Syrup" and of "Goff's Herb Bitters," both of which were declared misbranded. The "Cough Syrup" was sold under the claim (made on the trade package) that it would prevent fatal membranous croup, pneumonia and bronchitis; that it was a powerful restorative for the throat and lungs and was a remedy for pneumonia, bronchitis, "spitting of blood," whooping cough, "weak lungs," pleurisy and grippe. The federal chemists reported that the stuff contained 8 per cent. alcohol, about 55 per cent. sugar, as well as some vegetable extractives and traces of iron, iodids, antimony and alkaloids. The government declared that the claims made for this preparation were false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. The "Herb Bitters" were sold under the claim that "Typhoid Fever, La Grippe, Malaria and Appendicitis cannot possibly exist in the system when Goff's Herb Bitters are taken regularly according to directions." The government chemist reported that the stuff was a water-alcohol solution of aloes, sugar and alkaline carbonate flavored with peppermint. The claims quoted above were declared false and fraudulent and applied knowingly. The company pleaded guilty and was fined $25.—[*Notice of Judgment No. 4332.*]

DANDER-OFF

The C. Hughel Co., Indianapolis, Ind., were charged with shipping in interstate commerce a quantity of Dander-Off which was misbranded. The federal chemists reported that the preparation was an alkaline solution of borax and white arsenic colored with coal-tar dye. It was claimed to be superior for all forms of dandruff and for all diseased and eczemic affections of the scalp and to be effective for restoring lifeless hair to good condition and causing the hair to grow more abundantly. These, and similar claims, were declared by the government to be false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. The C. Hughel Co. pleaded guilty and was fined $50 and costs.—[*Notice of Judgment No. 4331.*]

TU-BER-KU

The Dr. A. W. Acker Chemical Co. of Selma, Ala., shipped in interstate commerce 144 bottles of "Tu-Ber-Ku" which the government declared were misbranded in violation of the Food and Drugs Act. The preparation which admittedly contained 20 per cent. alcohol was sold under such claims as:



"Tuberculosis Can Be Cured. Tu-Ber-Ku Triumphs."

"It is a Blood Cleanser, a Lung Builder, a Flesh Maker, a Health Restorer and an effective agency for fighting and curing Tuberculosis."

"Has cured Consumption, Catarrh, Lagrippe, Asthma and severe colds."

These and similar claims were declared by the government to be false, misleading and fraudulent. The Dr. Acker Chemical Company filed an answer to the libel claiming the product and the case was brought before the court and a jury. After due deliberation the jury returned a verdict sustaining the government's charges. The court ordered the fraudulent nostrum destroyed.—[*Notice of Judgment No. 4367.*]

ELECTROZONE

This alleged Antiseptic Germicide, Disinfectant was manufactured and sold by the Chemical and Electrical Co., 45 Broadway, New York. Eighty-four bottles of "Electrozone" were seized by the government under the charge that the stuff was misbranded. This charge was based on the facts, (1) that purchasers were led to believe that the product consisted of or contained ozone associated with electricity, when in fact it did not contain ozone and was not associated with electricity; (2) in that the chemical formula indicated that the product was composed of certain chemicals of which in fact it was not so composed; (3) in that ozone was not formed together with nascent oxygen and peroxid of hydrogen when the hypochlorites were brought in contact with organic matter, as was claimed on the label; (4) in that the stuff liberated no ozone, although the company claimed that when Electrozone was freely sprayed into an atmosphere containing carbonic acid gas, it neutralized this gas and filled the air with a fresh supply of oxygen. Electrozone was recommended by its exploiters for piles, cholera infantum, leukorrhea, rheumatism, eczema, sunburn, diphtheria, "falling hair," ear ache and various other conditions. These claims the government declared false and fradulent and applied "with a knowledge of their falsity" and had been made "for the purpose of defrauding purchasers." The

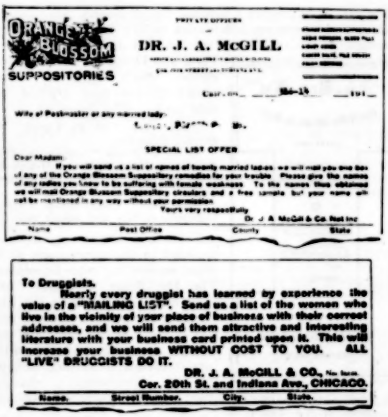
Chemical and Electrical Company appeared as claimant and having consented to the entry of a decree, with the understanding that it should apply only to certain of the therapeutic claims, the court declared that the stuff was "misbranded in so far as it relates to some of the therapeutic effects" made and declared the product condemned and forfeited and ordered that a judgment be entered against the claimant for the cost of the proceedings. It was provided, however that after payment of the costs, the company might execute a bond of $500 and the Electrozone would be turned over to it on the condition that it should be relabeled under the supervision of the federal official.—[*Notice of Judgment No. 4355*].

ORANGE BLOSSOM FEMALE SUPPOSITORIES

John A. McGill, Chicago, Illinois, has for years been selling a nostrum known as "Dr. Jno. A. McGill Orange Blossom Female Suppositories." Some of the claims that have been made for this nostrum are:

"A famous remedy for all female diseases."

"The famous Suppository is a Noble Remedy for the following diseases: Inflammation, Congestion and Falling of the Womb, Anteversion, Retroversion and Prolapsus, Dropsy of the Womb, Ulceration, Polypus, Tumors, Leucorrhoea, Profuse and Difficult Menstruation, Ovarian Tumors, Fibroid Tumors, Inflammation and Congestion of the Ovaries, Cancers in their Earlier States. . . ."


ORANGE BLOSSOM
SUPPOSITORIES

DR. J. A. McGILL

Wife of Postmaster or any married lady.

SPECIAL LIST OFFER

Dear Madam:

Yours very respectfully

Dr. J. A. McGill & Co. Not Inc

Name. Post Office. County. State.

To Druggists.

Nearly every druggist has learned by experience the value of a "MAILING LIST". Send us a list of the women who live in the vicinity of your place of business with their correct addresses, and we will send them attractive and interesting literature with your business card printed upon it. This will increase your business WITHOUT COST TO YOU. ALL "LIVE" DRUGGISTS DO IT.

DR. J. A. McGILL & CO., No. Inc.
Cor. 20th St. and Indiana Ave., CHICAGO.

Name. Street Number. City. State.

Two methods used by McGill to obtain a "sucker list": Letters sent to the wives of village postmasters and letters sent to druggists asking for the names of "married ladies" who are suffering from "female weakness."

The government chemists reported that analysis of the "Orange Blossom Female Suppositories" showed that they contained "free boric acid, aluminum salt, sulphate, potassium salt, sodium salt, starch and petrolatum [vaseline]." As such a mixture will not cure "Cancers in their Earlier States," "Falling of the Womb" or the various other conditions claimed by John A. McGill, the government declared these statements to be false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. McGill pleaded guilty and was fined $50 and costs.—[*Notice of Judgment No. 4360*].

DR. SIMPSON'S VEGETABLE COMPOUND

"Dr. Simpson's Vegetable Compound" was put on the market by the "Dr. A. B. Simpson Co." of Richmond, Ind., which was merely a trade name under which Thomas C. Davis and Eva J. Cole did business. In spite of this, the cartons of the nostrum bore the following statement:

"The undersigned, citizens of Richmond, take pleasure in saying that we are acquainted with Dr. A. B. Simpson, and for the sake of suffering humanity we cheerfully recommend him and his treatment. WM. H. SCHLATER, Clerk Circuit Court. S. S. STRATTAN, Treasurer Wayne Co., T. W. BENNETT, Mayor of Richmond, JOS. P. ILIFF, Chief of Police, THOS. C. DAVIS, Ag't U. S. Express Co. P. C. GRAFF, Ag't Adams Express Co."

The preparation was sold as a specific for erysipelas, all diseases of the skin, inflammatory rheumatism, scald head, salt rheum and tetter. The chemists of the Department of Agriculture reported that the stuff was essentially an alcohol-water solution of potassium iodid, with a small amount of vegetable extractive, in which podophyllum, licorice and gentian were indicated. The therapeutic claims were declared false and fraudulent while, in addition, misbranding was charged because the amount of alcohol present was not truthfully stated and because further a solution of potassium iodid cannot properly be called a "Vegetable Compound." Eva J. Cole pleaded guilty to a part of the indictment and was fined $25 and costs. The indictment was *nolle prossed* as to the defendant Davis.—[*Notice of Judgment No. 4363*].

WELLER'S STONE ROOT AND GIN

This preparation was put on the market by W. L. Weller & Sons, Louisville, Ky. The stuff, which admittedly contained 37½ per cent. of alcohol, was advertised as: "An Excellent Preparation for Kidney, Bladder and All Urinary Troubles, Also an Efficient Relief for Nervous Debility and Dyspepsia. As a Tonic It Has No Equal." These and similar claims were naturally declared by the federal authorities to be false and fraudulent and applied knowingly and in reckless and wanton disregard of their truth or falsity. W. L. Weller & Sons having admitted the facts and consented to a decree, the court ordered that the stuff should be relabeled under the supervision of the United States food and drug inspectors and restored to the company, after the costs of the proceedings had been paid and a bond in the sum of $100 executed.—[*Notice of Judgment No. 4297.*]

Correspondence

Rural Obstetrics

To the Editor:—In a discussion on this subject abstracted in THE JOURNAL, Dec. 9, 1916, p. 1785, two women physicians took occasion to belittle the ability of the rural practitioner of this branch of the practice of medicine.

This is no new subject. The "country doctor" is looked down on professionally by many of his colleagues who happen to reside in larger communities.

It is hard to see why this should be. In the article referred to, the statement is made that "these men are sent out from our medical colleges and schools with nothing but a smattering of knowledge of the mechanics of childbirth." So far as medical college teaching with its accompanying hospital service is concerned, it is to be remembered that the practitioners in rural communities did not learn their profession there. That time has long passed. We country doctors, as far as my knowledge extends, are originally from the same schools as our city colleagues. If one takes the trouble to look into the matter, he (or she) will find that as large a proportion of these doctors come from first-class schools as the physicians living in larger cities.

With respect to facilities for keeping up to date after graduation, of course the resident of the larger city has much greater opportunities. He can more easily attend the lectures and clinics of specialists, and see large numbers of cases. But it will be noticed by one who visits the postgraduate schools that their attendance is not made up of physicians living in the city in which the school may be located. On the other hand, these valuable institutions are attended principally by those who would be classified as "country doctors," many hundreds of whom have left lucrative and otherwise successful practices and traveled long distances, frequently half way across the continent, to obtain such advantages.

Since we do not have medical libraries located near by, our private ones are well stocked, and the books are not for ornament—they are used. The mail brings us in constant touch with the same information which is accessible to our city brothers (and sisters). Our journals are not thrown

unopened in a pile behind the door or on a shelf to be finally discarded without being unwrapped. They are used to keep us in touch with what is going on in the centers of teaching and experimentation.

In the matter of personal experience after his graduation, the country doctor is in a position in which he must keep up with the profession. He has not the specialists in every line, or easily accessible large hospitals to which he may turn over his cases when they are more or less puzzling. Most country practitioners are not so happily located, for instance, that they can call an ambulance and shift the responsibility of a septic obstetric patient to the shoulders of a large hospital, and so have their own mortality rates kept down.

On the contrary, the man practicing in the country must bear his own burdens, and he is in a position to be personally blamed (or sometimes praised) for his results. With this in mind, the practitioner who has the moral and physical backbone to practice away from the larger cities is always doing his best for his patients, even to the end, and is always trying to extend his limitations.

The only country doctors with whose personalities and results I am acquainted are western ones, and I am not ashamed to count myself one of them.

The county in which I reside has an area of over 5,600 square miles, and a population of a little over 7,500. There are usually eight or nine physicians residing in the county. The result is that we often attend obstetric patients at distances of 30 or 40 miles from our residences, thanks to the automobile, though many of our roads are in the mountains.

Of course there are disadvantages for the patients and discomforts for the doctors in this sort of practice, but some one must do it. We realize that under such circumstances the daily visit is impossible. On the other hand, we know that such daily visits do little to prevent or limit infections. If these occur, whether in city or in country, they are almost invarialy caused at the time of labor. The consequence is that if proper asepsis is carried out at the time of delivery, there will be little more mortality or morbidity than if the woman lived in a large city.

Since we have been in the registration area, there have been in this county 1,140 full-term births, about 1,100 of them reported by physicians. In this number there have been four deaths directly attributable to labor. One of these deaths was due to puerperal sepsis, one to pulmonary embolism and two to eclampsia. Neither of the eclampsia patients was under the care of a physician until after the onset of serious convulsions. A physician had not been engaged to attend them. One of them was over 30 miles from a physician, and the other about 15 miles away.

Careful examination of death certificates filed during the registration period does not show the deaths of other mothers from "typhoid fever," "acute tuberculosis," "malaria" or any of those conditions which are sometimes made use of, intentionally or otherwise, to cover deaths due to puerperal infection. These mothers were followed up, through the death certificates, for a period of three months after labor, and none of them died during that time from any cause whatever.

Of the physicians attending these 1,100 confinements, five have practiced in this county for varying lengths of time during the registration period, while five have resided here during the whole time, so that to a greater or less extent the 1,100 labors were attended by ten different "country doctors."

Of course I have no means of comparing our local practitioners with those of other rural communities, but I see no reason to believe that they are not representative country doctors, at least as regards this section of the United States.

With such statistics at hand, I certainly think I am justified in making protest against such belittling of the obstetric results of rural practitioners in general. I cannot speak for or against those of the eastern country districts, but only so far as refers to the section in which I happen to reside.

Finally, we do not take kindly to criticism from such sources as those from which the discussion referred to seems to have originated. On looking up the "pedigrees" of the ladies in the fourth edition of the American Medical Directory, copyrighted in 1914, I find that one of the critics was not yet in practice, at least in the United States or Canada—less than three years ago. The other critic seems, according to the same authority, to have graduated from a medical college located in a "city" of about 10,000 population. At the time of publication of the directory of 1914, she was still located in the same center of learning.

MAURICE A. WALKER, M.D., Dillon, Mont.

"Another 'Contemptuous Verdict'"

To the Editor:—In your issue of December 16 you refer to a certain, or rather, uncertain "dealer in rugs" as having been called a swindler by the *Tribune*. Why this "better part of valor" in discreetly suppressing the details? The *Tribune* evidently had courage enough to expose a fraud and take a chance. Full publicity of such cases is for the good and protection of the community and a further deterrent to evil. In some countries the convicted party must publish the decision of the court in a number of papers. Now, if it was a libel suit THE JOURNAL feared, it could have limited itself to a citation of the case from the records, giving the name of plaintiff and defendant, as it does in its medicolegal column. No accusation could possibly lie on the publication of a finding of a court, and your readers would know, as they really have a right to know, who the dealer was and where we were to find his "large and commodious pitfall."

P. H. F.

[COMMENT.—Our correspondent submitted with this letter what he doubtless considered an appropriate caption: "Editorial Discretion and 'Contemptuous Verdicts.'" The implication that THE JOURNAL hesitates to give facts for fear of incurring a libel suit is really humorous. There was just one reason that the name and address of the "dealer in rugs" was not given in the editorial in question: it had nothing to do with the case. THE JOURNAL'S editorial was simply a comment on the principle involved in "contemptuous verdicts." That was all. It was neither conceived nor written with the idea of protecting THE JOURNAL readers from Maine to California and from Oregon to Florida from the alleged "large and commodious pitfall" located in a retail establishment on Fifth Avenue, New York City. As "P. H. F." lives in New York City, an investment of one cent in the New York *Tribune* for Dec. 5, 1916, will give him full information about the case.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TESTAMENTARY CAPACITY

To the Editor:—Please tell me what is the usual test given by alienists to persons claimed to be mentally unsound, with reference to their capability to transact business and make their wills. There is to come up in the near future the case of a man who made his will over four years ago in favor of his wife, and then afterward of his daughter. The man worked on a farm all his life. He was of more than ordinary intelligence, compared with the older farmers in the locality, and accumulated a small fortune by hard labor and thrift. He helped all the other children to own farms of their own. After an illness lasting five weeks caused by overheating on a horseback ride, he died at the age of 78 years. During this illness he was delirious at times, there was albumin in the urine, etc. All the business men with whom I have talked regarding his soundness of mind state they had never discovered any mental unsoundness, or a condition different from that of any other normal man with whom they had transacted business. I will thank you for any information you may send me bearing on this case, especially what points the contestants are likely to introduce as evidence in their attempt to break the will. R. S. D.

ANSWER.—The laws relating to what constitutes capacity to make a valid will vary so much in different states that there can be no uniform rule as to how the mental element of that capacity can be tested by an alienist. It follows, therefore, that it is never the function of an alienist to pronounce on this capacity. This is the duty of the court before which the validity of a will is contested. The alienist will testify only as to the condition of mind of the testator. In

some countries proof of the slightest degree of mental alienation at the time of the execution of a testament will suffice to invalidate it. At the other extreme we find the conservative laws on the subject which prevail where the English common law is taken as the basis of legislation. Under the latter systems it is difficult to upset a will on the ground of mental incapacity.

Were an alienist to permit himself to give an opinion as to the testamentary capacity of a testator, he would have either to give a different opinion in different countries, which would be to assume the right of interpreting law, or to give the same opinion in all countries, which would constitute an attempt on the part of the alienist to legislate. In the one case he would be usurping the functions of the court; in the other he would be trespassing on the domain of the legislator. Nevertheless, an expert testifying in such a case will usually be familiar with the local law on testamentary capacity. He will therefore direct his attention more particularly to those elements of the mentality of the testator which, under the local law, are relevant to the latter's testamentary capacity.

What these would be in the particular case you set out we are unable to appreciate. In general, however, the points of importance in a man of the age of 74 and in the condition which you have described, would be: his memory for recent events; his knowledge of the nature and extent of the property of which he was purporting to dispose and of his relations thereto; the extent to which persons who, in the ordinary event, might be expected to benefit by his will, and especially his natural heirs and successors, would be present to his mind in their proper atmosphere at the time he executed the document; and lastly, his knowledge of the nature and consequences of the act which he was performing. An expert may testify in such a case on the results of an examination actually made by himself, or he may, as an opinion witness, enlighten the court by interpreting the effect of the evidence of other persons, or by answers to hypothetic questions. We gather from your letter that the latter procedure is the one likely to be adopted in the case you cite.

There is one point which is not expressly raised by our correspondent, but which should be borne in mind: When there is evidence brought forward tending to show that the testator, though not of unsound mind to such a degree as to incapacitate him from making a will, was nevertheless not of entirely sound mind in the ordinary sense of the expression, this kind of evidence is often relied on and acted on by the court, not to invalidate the will on the ground of unsound mind, but to supplement any other evidence there may be in support of an attempt to upset the will on the ground of undue influence.

MOUTH WASH

To the Editor:—In the *Journal of Infectious Diseases*, 1906, **3**, 793, there was an article by Dr. A. B. Wadsworth, now director of the Division of Laboratories and Research of the New York State Department of Health, giving a detailed description of a mouth wash. Please publish it in Queries and Minor Notes. H. D. T.

ANSWER:—

	Gm. or c.c.	
Sodium chlorid	2	3 ss.
Sodium bicarbonate	7	gr. x
Water (dist.)	62	ʒ ii
Glycerin	31	ʒ i
Alcohol	155	ʒ v
Thymol		
Menthol	55	07 gr. i
Oil of wintergreen		18 gtt. iii
Oil of cinnamon		12 gtt. ii
Oil of eucalyptus		32 gtt. v
Tr. cudbear	6	ʒ iss.
Tr. rhatany	2	ʒ ss.

Dissolve salts in water before adding alcohol. For use add an equal part of water.

RUPTURE OF THE ACHILLES TENDON

To the Editor:—Please let me know what the prognosis is in a case of complete rupture of the Achilles tendon at about the junction of the tendon and the muscles. Please do not publish my name. B. A. R.

ANSWER.—The prognosis in complete rupture of the Achilles tendon is good, provided operation is performed and the tendon properly sutured. If the rupture is a subcutaneous one and there are no contraindications, the operation should be done at once. If the rupture is compound, the question of the time to operate will depend on the condition of the wound as to the presence or absence of infection. If the wound is not infected, immediate operation should be done. In the presence of severe infection, operation should be postponed until the infection has been cleared up.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ILLINOIS: Chicago, Jan. 24-26. Sec., Dr. C. St. Clair Drake, Capitol Bldg., Springfield.

IOWA: Des Moines, Feb. 6-8. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, Feb. 13. Sec., Dr. H. A. Dykes, Lehanon.

NEW YORK: New York City, Albany, Syracuse, and Buffalo, Jan. 29-Feb. 2. Chief, Examinations Division, H. H. Horner, University of the State of New York, Albany, N. Y.

VERMONT: Montpelier, Feb. 13. Sec., Dr. W. Scott Nay, Underhill.

Mississippi October Report

Dr. J. D. Gilleylen, secretary of the Mississippi State Board of Health, reports the written examination, held at Jackson, Oct. 24-25, 1916. The total number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 27, of whom 19 passed and 8 failed. Eight candidates were licensed through reciprocity, including one osteopath. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Birmingham Medical College	(1915)	84.2
Medical College of Alabama	(1897)	75
Atlanta College of Phys. and Surgs.	(1908)	82.7
Atlanta Medical College	(1916)	75
Chicago College of Medicine and Surgery	(1916)	75.2
University of Louisville	(1916)	81
Tulane University of Louisiana	(1908) 81.7; (1916)	82, 82.7
University of Louisiana	(1882)	84.2
University of Pennsylvania	(1913) 83; (1916)	81.6
University of Tennessee	(1916) 75, 75.2, 75.6, 80.5, 82.6, 83.5,	84.7

FAILED		
Coll. of Phys. and Surgs., Little Rock	(1910)	42.2
Loyola University	(1913)	71.1
Louisville Medical College	(1907)	67.5
Mississippi Medical College	(1911)	* 25.1
Meharry Medical College (1913) 55.3;	(1916)	60.5, 70
University of Tennessee	(1916)	61.5

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons	(1913)	Georgia
National University of Arts and Sciences	(1916)	Missouri
College of Physicians and Surgeons, Memphis	(1908)	Tennessee
Memphis Hospital Medical College (1902)	(1903)	Texas
	(1913)	Tennessee
University of Tennessee	(1913)	Tennessee

Oklahoma October Report

Dr. Ralph V. Smith, secretary of the Oklahoma State Board of Medical Examiners, reports the oral and written examination held at Oklahoma City, Oct. 10-11, 1916. The total number of subjects examined in was 11; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 19, of whom 16 passed and 3 failed, including 2 osteopaths. Sixteen candidates were licensed through reciprocity, including 1 osteopath. One candidate was licensed through reregistration. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Birmingham Medical College	(1913)	82
Columbian University	(1900)	80
Atlanta Medical College	(1915)	71
Chicago College of Medicine and Surgery	(1916)	80
College of Physicians and Surgeons, Chicago	(1912)	87
Northwestern University (1912) 85;	(1914)	81
Tulane University of Louisiana	(1914)	80
American Medical College	(1908)	77
University of Oklahoma	(1916)	81
University of Pennsylvania	(1907)	84
University of Pittsburgh	(1915)	83
Vanderbilt University	(1915)	76, 83
Baylor University	(1916)	75
Fort Worth School of Medicine	(1916)	79

FAILED		
College of Physicians and Surgeons, Kansas City, Kan.	(1901)	*

* No grade given.

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
University of Arkansas	(1904)	Arkansas
Hering Medical College	(1910)	Georgia
Hospital College of Medicine ....(1895)	Arkansas; (1907)	Kentucky
University of Louisville (1889)	(1909)	Kentucky
Kansas City Hahnemann Medical College	(1904)	Kansas
St. Louis College of Physicians and Surgeons	(1895)	Arkansas

Washington University	(1913)	Missouri
University of Buffalo	(1901)	Texas
Eclectic Medical Institute	(1904)	Arkansas
University of Pennsylvania	(1908)	W. Virginia
Chattanooga Medical College	(1902)	Tennessee
Meharry Medical College	(1915)	Tennessee
Vanderbilt University	(1910)	Mississippi

Georgia October Report

Dr. C. T. Nolan, secretary of the State Board of Medical Examiners of Georgia, reports the written examination held at Atlanta, Oct. 10, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 80. The total number of candidates examined was 12, of whom 7 passed and 5 failed. Eight candidates were licensed through reciprocity. The following colleges were represented.

PASSED College	Year Grad.	Per Cent.
Atlanta Medical College	(1916)	86.6
University of Maryland	(1916)	94.4
Harvard University	(1915) 95.7; (1916)	89.5
Meharry Medical College	(1916)	83.1, 83.4
Vanderbilt University	(1916)	92.7
FAILED		
Loyola University	(1916)	67.9
Meharry Medical College	(1908) 75.9; (1915) 71; (1916)	76.4, 77.9

LICENSED THROUGH RECIPROCITY College	Year Grad.	Reciprocity with
Georgetown University	(1914)	Maine
Tulane University of Louisiana	(1916)	Louisiana
Johns Hopkins University	(1910)	Virginia
University of Maryland	(1911)	Maryland
Leonard Medical School	(1911)	N. Carolina
Jefferson Medical College of Philadelphia	(191b)	N. Carolina
Meharry Medical College	(1916)	Tennessee
Medical College of Virginia	(1909)	N. Carolina

New Jersey October Report

Dr. Alexander MacAlister, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, Oct. 17-18, 1916. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 17, of whom 12 passed and 5 failed. Thirty-four candidates were licensed through indorsement. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Georgetown University	(1914)	80
Howard University	(1915)	75
Johns Hopkins University	(1915)	79.7
Harvard University	(1916)	83*
Albany Medical College	(1914)	75
New York Homeo. Med. Coll. and Flower Hosp.	(1915)	75.1 81
Jefferson Med. College of Philadelphia	(1902) 75; (1916)	84.8
Medico-Chirurgical College of Philadelphia	(1916)	78
University of Vermont	(1915)	82.8
University of Virginia	(1915)	79.4
FAILED		
Howard University	(1914)	71.7
University Medical College of Kansas City	(1892)	60.4
University of the City of New York	(1880)	64.6
University of Palermo	(1905)	53.6
University of St. Joseph, Beirut	(1894)	72.1

LICENSED THROUGH INDORSEMENT FROM JULY 8 TO NOV. 8, 1916 College	Year Grad.	Through Indorsement
University of Louisville	(1912)	Kentucky
Baltimore University	(1901)	Penna.
University of Maryland	(1916)	Maine
Tufts College	(1912)	Mass.
Dartmouth Medical School	(1908)	Maine
Albany Medical College	(1915)	New York
Bellevue Hospital Medical College	(1898)	New York
Columbia University, Coll. of Phys. and Surgs.	(1896) (1906) (1913) (1915)	New York
Cornell University	(1915)	Maine
Eclectic Medical College of City of New York	(1910)	New York
Long Island College Hospital	(1909) (1913) (1915)	New York
New York Homeo. Med. Coll. and Flower Hosp.	(1909) (1913) (1914) (1916)	New York
University and Bellevue Hosp. Med. Coll.	(1913) (1914) (1915, 3)	New York
University of Buffalo	(1914)	New York
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1914)	Delaware
Medico-Chirurgical Coll. of Philadelphia	(1915)	New York
University of Pennsylvania	(1902)	Penna.
University of Vermont	(1902) (1906) (1914)	Vermont
University of Virginia	(1915)	Virginia
University of Naples	(1892)	Alabama

Social Medicine, Medical Economics and Miscellany

SPIROCHAETA PALLIDA OR TREPONEMA PALLIDUM?

In Reply to Dr. Stiles

WILLIAM ALLEN PUSEY, A.M., M.D.
CHICAGO

In reply to Dr. Stiles' argument, I would make two points:

First, the genus *Treponema*, and specifically the organism of syphilis, are not so sharply distinguished from the *Spirochaeta* that the genus *Treponema* can be held to be finally established without any reasonable doubt as to the validity of the genus; and, this being the case, the argument for the name *Treponema pallidum* is based on uncertain ground when it rests on reasons of classification alone.

Second, an overwhelming preponderance of authoritative usage has fixed the name *Spirochaeta pallida* in scientific literature as the name for the organism of syphilis. Dr. Stiles assumes that the distinctions between the *Spirochaetae* and the *Treponemata* are clear and definite, and that the establishment of the genus *Treponema* as distinguished from the *Spirochaeta* is final. The whole classification argument is based on this assumption.

I do not presume to offer my opinion on a question of zoological nomenclature against that of Dr. Stiles, but I may without presumption point out that there is a difference of opinion among microbiologists as to the classification of the organism of syphilis. Its place is not definitely and with unanimity settled outside the genus *Spirochaeta*. Dr. Stiles himself very clearly points out that there are, as regards this point, two groups among zoologists, the "lumpers" and the "splitters." The very fact of the existence of the two groups is the best evidence of the differences of opinion as to this matter of classification.

It is not difficult for me, without being conversant with the literature of protozoology, to find eminent authorities who differ from the International Commission on Zoological Nomenclature about the name of the organism of syphilis. One of these is no less a person than Metchnikoff, Chef de Service de Microbiologie de l'Institut Pasteur, not a physician, who, in his exhaustive article on the microbiology of syphilis in the "British System of Syphilis," says, "I consider that the time is still premature to make any classification of spirillar micro-organisms."

Again, Dr. Novy, professor of bacteriology in the University of Michigan, who has perhaps done more work on the spirochetes and allied forms than any other American expert, indicates in a communication to me, which I quoted in my previous article, that in his opinion the separation of the organism of syphilis from the spirochetes is not established beyond question when he says, "The term *Spirochaeta* has come into such general use that it hardly seems worth while to make a change unless the difference is absolutely conclusive."

Further, Dr. Calkins, professor of protozoology in Columbia University, not a physician, in commenting in his "Protozoology" on the uncertainties of classification and the difficulties in determining the characteristics of these organisms, has this to say:

> *Spirochaeta* thus characterized as an organism with flexible, spirally twisted body with a laterally placed undulating membrane, would seem to be definitely distinguished . . .; but, unfortunately, the problem is not so simple, for we have to do with exquisitely minute things which offer extreme difficulties in technical treatment. . . . Statements as to structure and activities of certain species, even though made by equally eminent authorities, are frequently directly contradictory . . .
>
> Observations are too incomplete and too often contradictory to justify a safe grouping at the present time, and in making groups of spirochetes a given species will be placed in one division or another, according to the discretion of the present author in following one or another authority. With this preliminary caution, the following table of the different kinds of spirochetes, classified according to the presence or absence of so-called flagella and undulating membrane, is based.

He then classifies these organisms as follows:

A. Type genus *Spirocheta*. With undulating membrane; without flagella.

B. Genus *Treponema*. Without undulating membrane; with flagella.

C. Undetermined forms referred to genera *Spirocheta* and *Spirillum*.

A great difference of opinion as to the classification of these organisms is seen when one compares the species in genus *Treponema* as given by Calkins in his "Protozoology" with the species in the same genus as given by Fantham in "The Animal Parasites of Man" by Fantham, Stephens and Theobald. Calkins includes under the genus *Treponema: Tr. pallidum, Tr. pertenue, Tr. anserinum, Tr. gallinarum, Tr. theileri, Tr. muris.* Fantham gives only *Tr. pallidum* and *Tr. pertenue*, but indicates that there are other members of the genus. The interesting fact, comparing the two classifications, is that three species of the six which Calkins classifies as *Treponemata*, Fantham classifies and describes as *Spirochaetae*. The *Treponema gallinarum* of Calkins is the *Spirochaeta gallinarum* of Fantham. The *Treponema anserinum* of Calkins is the *Spirochaeta anserinum* of Fantham. The *Treponema muris* of Calkins is the *Spirochaeta muris* of Fantham.

Bosanquet, in his work "Spirochetes," has the following to say concerning classification:

> It has already been pointed out that the position of the spirochaetes in nature—whether they are to be regarded as protozoa or bacteria—is doubtful. Their relations as a group are almost equally undecided . . .
>
> Certain peculiarities observed in the *Sp. pallida* led . . . Schaudinn . . . to put it in a distinct genus called . . . *Treponema*. The characteristics of this genus were: the round shape of the body in section, as opposed to the flattened shape of the spirochaetes; the fixity of the curls exhibited by the organism; the absence of an undulating membrane, and the presence of terminal filaments . . .
>
> Examination of the qualities on which this distinction is founded does not tend to strengthen a belief in its validity. The round shape of the organism in section may be admitted, but the ribbon-like shape of the other small spirochaetes is not very clearly established. The existence of an undulating membrane is doubtful even in the larger spirochaetes, and still more problematical in the smaller group. Terminal filaments may be found in other species besides *Sp. pallida*, and finally the even curls presented by this spirochaete may at times be absent, as is admitted even by Schaudinn himself. Norris, Pappenheimer and Flournoy point out that the *Sp. obermeieri* exhibits all the characteristics assigned to a treponema.

The uncertainty of the taxonomic place of these organisms is quickly seen whenever a comparison is made of the views of different authors concerning them. Schaudinn, as already shown, made as a distinguishing characteristic, which separated the spirochetes from the treponemes, the presence of an undulating membrane in the spirochete, and the absence of an undulating membrane in the treponeme. Yet Fantham says, in reference to this point; "In some forms there is a membrane or crista present, which in the past was compared with the undulating membrane of a trypanosome, but the membrane of a spirochaete does not undulate." There is even uncertainty about the very type species of the genus *Spirochaeta*, the *Spirochaeta plicatilis* of Ehrenberg, discovered in 1838; for Zuelzer, as quoted by Fantham, says that the *Spirochaeta plicatilis* does not possess a membrane. Again, Blanchard, according to Fantham, finds a slight membrane in the *Treponema pertenue*. Here, then, we have this situation; Schaudinn establishes an undulating membrane as a critical characteristic of the *Spirochaeta*. Fantham says that the membrane does not undulate. According to Zuelzer's observation, the very type species of the *Spirochaeta* does not possess a membrane; and Blanchard finds a membrane in one of the species of the genus *Treponema* which has been separated from the genus *Spirochaeta* partly on the ground that its members do not possess a membrane.

I think these few quotations will indicate the difficulties and the lack of unanimity in the taxonomy of this subject, and the weakness that must attach to any argument which would insist on naming the organism of syphilis on taxonomic grounds alone. But even if there were not this utter uncertainty among authors now as to the classification of these organisms, experience indicates that increase in knowledge might entirely upset the classification in a short time. As knowledge increases, "splitters" are quite as likely to be forced to "lump" as "lumpers" are to "split." There is no inherent scientific virtue pertaining to either attitude. It is not hard to cite experiences to illustrate this fact in the domain of microbiology. Twenty-five years ago so good an authority as Prof. William H. Welch gave us the *Staphyloccus epidermidis-albus* as a species of staphylococcus. It has long since been lumped with the *staphylococcus albus*. A good recent illustration of the uncertainty of distinctions between micro-organisms is the work of E. C. Rosenow, who has shown by his researches that many cocci thought to be distinct and pathogenic varieties are probably one species of streptococcus presenting varying characteristics under different conditions. There is even some uncertainty about the morphology of the organism of syphilis. According to Bosanquet, Bertarelli and Volpino, Schereschewsky, Sobernheim and Tamasoli describe intermediate or irregular forms of *Spirochaeta pallida*. Bosanquet says, "*Spirochaeta* pallida is noted for the regularity of its curls and is indeed identified by this means; yet Schaudinn observed that almost straight forms might occur; . . ." He adds, "These observations are sufficient to indicate that considerable doubt must be felt as to the constancy of form among the small spirochaetes; . . ."

In the face of such differences as shown above, and the confessedly meager and uncertain knowledge of the facts on which the classification of the spirochetes and allied organisms must be made, I believe the outsider may plead, even against the testimony of so authoritative a body as the International Commission on Zoological Nomenclature, that the genus *Treponema* is not so firmly fixed that, on the grounds of classification alone, the name Treponema can be insisted on for any given species in the genus regardless of other considerations.

There are one or two collateral points in Dr. Stiles' article concerning which I should like to say a word. His invoking allegiance to the findings of the Commission on Nomenclature as a matter of ethics seems to me not apposite, and, if I understand the application which he makes of it, it must, I believe, have been due to oversight. Ethics, scientific ethics included, concern matters of right and wrong; and I am sure Dr. Stiles does not believe that any scientific commission, however important, is so august that failure to accept its findings is wrong. That would be medieval worship of authority.

He also refers to the confusion which is liable to occur from the use of *Spirochaeta* without qualification instead of the specific name, *Spirochaeta pallida*. I believe there is little danger of confusion as to the meaning in an article on syphilis if the unqualified word spirochete should be used after *Spirochaeta pallida* had first been used. And I certainly see no reason why there should be more confusion from the use of *Spirochaeta* alone than that of *Treponema* alone. There are already several treponemes, and the unqualified word *Treponema* is certainly not less likely to lead to confusion than the more familiar word *Spirochaeta* without qualification.

A word as to Dr. Stiles' remarks regarding the backwardness of physicians and their failure to appreciate the difficulties of this subject as pure zoologists do: So far as the specific instance which we are now considering is concerned, I do not think that it can be maintained that the pure zoologists stand as a unanimous group, while the physician zoologists are chiefly responsible for the other group. In looking up the position of authorities on this subject I took the first that came to hand. They were Novy, Metchnikoff, Calkins, Fantham, and Bosanquet. Two of these five are not physicians (Calkins and Metchnikoff), and the other three, while physicians, are specialists in this field, who have done original work of the highest class and I have no doubt could claim equal appreciation with the purest systematists of all of the difficulties of classification and nomenclature. The physician zoologists are not responsible for the confusion; pure zoologists are equally uncertain. The confusion lies in the uncertainty of the criteria on which the classification rest.

But regardless of classification, my argument in favor of *Spirochaeta pallida* is based on the fact that *Spirochaeta pallida* is established by authoratative and greatly preponderating usage. The argument would be just as strong for *Treponema pallidum* if usage were in its favor. Dr. Stiles indicates that there is some doubt as to what is meant by best usage as regards a word or linguistic form, and says, "Best usage from the point of view of the splitters is that usage which comes closest to expressing a natural classification of the organism"—in other words, comes closest to expressing their views. I venture to insist that such is not the meaning of the words "best usage" or "good usage" as they are used in this connection, but, on the contrary, that they refer solely to precedent—the use by recognized authorities of any particular word in question. Good use is a technical phrase which, as such, will be found in books dealing with linguistic forms. It is an accepted principle that the criterion of the standing of words is such usage—not what you, or I, or any present body of men think should be the word to describe a thing, but what the word to describe it is, as shown by good precedent.

As Barrett Wendell says in his work on English composition:

> In English, as in every other language, the final test of what words we may use is inevitably the usage of those who speak and write it; the test of what words we should use is the usage of those who speak and write it best, in other words, good use. . . .
>
> Common consent, general practice, is what makes the . . . alphabet signify anything. In this fact lies the . . . hopelessness of the efforts now and then made by . . . dogmatists, not possessed of despotic authority, to reform spelling [With equal truth we might substitute nomenclature here for spelling.—W. A. P.] . . . The question in a given instance is not what ought to be the case, but what is. And to the state of things which enables us to decide in spelling, as in other fashions, what the case is at any given moment, we give, for convenience sake, the name "Good Use." . . .
>
> Dictionaries and grammars [or commissions on nomenclature.—W. A. P.] to be sure, may codify what exists at any given moment. Regarded as codes, they are invaluable; but at best they are codes of common law, not legislative enactments. The only sanction behind them is that of practice, of usage.

Thus, usage, in the technical sense of good precedent, establishes proper linguistic forms, and I would point out again that usage, both in quantity and quality, is overwhelmingly in favor of *Spirochaeta pallida*. That point was brought out in my previous article. Let me repeat here a few of the names of individuals to illustrate the quality of usage in favor of *Spirochaeta pallida*. .

Metchnikoff, who discovered the inoculability of syphilis in apes, and by this discovery made possible the present revolution in our knowledge of syphilis, used *Spirochaeta pallida*. Hoffmann, who was the codiscoverer of *Spirochaeta pallida* with Schaudinn, and whose name was never separated from Schaudinn's in giving credit for the discovery until after Schaudinn's death, uses *Spirochaeta pallida*. Neisser, who with Wassermann and Bruck developed the serum compliment reaction for syphilis, and until his recent death was our greatest authority on clinical and experimental syphilis, used *Spirochaeta pallida*. Uhlenhuth, whose researches in the chemotherapy of syphilis opened the way for Ehrlich, and whose work, "Atlas der Experimental Kaninchen Syphilis," written in collaboration with Mulzer, is the authoritative book on experimental syphilis, uses *Spirochaeta pallida*. Ehrlich used *Spirochaeta pallida*. Noguchi, the only other man whose work in syphilis entitles him to mention in the class with these men, uses *Spirochaeta pallida* as a rule, but *Treponema pallidum* occasionally.

These men, of course, are not a miscellaneous collection. They, with Schaudinn, who died within a year after the discovery of the *Spirochaeta pallida*, are the men whose discoveries have made modern syphilis; and they and their followers have written *Spirochaeta pallida* into the literature of syphilis in such a way that it cannot be erased. In the attempt to substitute *Treponema pallidum*, the most that can be gained by the advocates of it is the use of both names for the organism. Splitters and purists may use *Treponema pallidum*. It is not beyond the possibilities that in time the taxonomic grounds for its use may be swept from under them, and that they may be forced back to the use of *Spirochaeta pallida*. But whatever they may do, the universal use of *Spirochaeta pallida* in German, its overwhelmingly preponderant use in English, and its preponderant use in French mean that *Spirochaeta pallida* will continue to be the generally used name for the organism of syphilis. For the sake of unanimity and clearness, the use of two names for the organism should be avoided if possible. Certainly this should not be brought about simply in the interest of a system of classification, which, as respects the organism in question here, is based on characteristics whose finality is not certain.

Medicolegal

Liability of Father for Services for Daughter Away from Home

(*Wallace vs. Cox et al.* (*Tenn.*), *188 S. W. R. 611*)

The Supreme Court of Tennessee affirms a judgment holding that the plaintiff was entitled to recover from defendant Cox as on an implied contract for a surgical operation and attendance on a 17 year old daughter of said defendant. This daughter and an older one were in a nearby city earning their own living, when this one became ill and the plaintiff was called in by the matron of the Y. W. C. A. building where they were boarding. After prescribing for the daughter for a time, the plaintiff decided that an operation was necessary to remove an ovarian tumor. He had stated that the operation would be a slight one, and, when the elder daughter telephoned to their father that an operation was advised, and he inquired whether an incision would have to be made, she said that it would not, that the operation would be a slight one, and he replied: "Well, then, if it must be done, it must be done." The elder daughter testified that the plaintiff did not ask her to telephone to her father, and that she did not inform him that she had done so for several days after the operation. The plaintiff testified that in performing the services, he looked to the father for compensation. The father testified that he failed to hear the name of the surgeon over the telephone; that had he been informed that an incision was required, he would have gone to the city and had the operation performed by another surgeon, with whom he was personally acquainted; and that he was not asked to and did not promise to pay for the operation. The operation was successful. Bills were sent to the father, who paid no attention to them, and suit was brought. The circuit judge, sitting without the intervention of a jury, held that the father was not liable. The court of civil appeals divided on the question, the majority holding that the plaintiff was entitled to recover as on an implied contract, which latter is the judgment here affirmed. The supreme court says that the liability of a father for necessary medical attention given a child who has not remained as a member of his immediate family is a question on which the authorities are at least in apparent conflict. Cases fairly supporting either of the opposing rulings of the lower courts may be found, but a number of those holding with the judgment of the circuit court take color from English cases which proceed on the principle that a father is under only a moral obligation to support his child. The obligation of the parent to support his child at common law was not well defined, but in Tennessee it has been held, more nearly in accord with the natural sense of justice, that the obligation is not merely moral, but legal, and enforceable as a legal common-law duty. It therefore follows that if the parent neglect that duty, any other person who supplies such necessary attention to the child is deemed, ordinarily, to have conferred a benefit on the delinquent parent, for which the law raises an implied promise to pay on the part of the parent. In this case the father did not successfully prove any emancipation of the daughter conferring on her the right to her earnings and terminating his duty to support her. Her effort to earn her own support was praiseworthy and tended to lift a burden that rested on the father, and the courts should be slow to permit the fact to become a shield for his protection, at least where a full emancipation was not shown. The restoration of the daughter

in consequence of the surgical operation was itself beneficial to the father, since it gave the daughter ability to relieve him further, unless it be assumed to his and the law's discredit that he no longer owed the duty to receive and provide for her as an invalid in his home. The modern tendency among women and girls to earn a living frequently gives occasion for absence from home, and that fact should not readily be held to deprive them of a claim to support in time of need. Slight circumstances, if necessary, will be allowed to control the decision.

Breach of Contract for Removal of Gallstones

(Schuster vs. Sutherland (Wash.), 158 Pac. R. 730)

The Supreme Court of Washington affirms a judgment in favor of the plaintiff, who sued the defendant for alleged breach of contract for the removal of gallstones, etc. The court says that it was alleged, in substance, in the complaint, that, December 4, the plaintiff and the defendant entered into a verbal contract whereby the defendant, a physician and surgeon, agreed to perform a surgical operation on the plaintiff, and contracted, warranted and promised to remove all gallstones then in the body of the plaintiff, to cure him of the ailments from which he was then suffering, and to remove from his abdomen all causes of disease, of whatsoever kind or nature, possible to be removed by means of such a surgical operation; that the operation was performed the next day; that the defendant failed to remove all or any gallstones from the plaintiff's body by the operation, though a certain gallstone was present; and that the plaintiff was compelled to employ another surgeon, who performed an operation, January 30, and removed a gallstone which had not been found by the defendant. Another statement by the court is that, February 7, the second surgeon found and removed a calculus from the duct known as the ampulla of Vater, and after this operation the plaintiff improved immediately, and progressed to a final recovery without a recurrence of his previous symptoms. Now, as the court reads the record, there was evidence tending to show that the contract was to remove all gallstones in the plaintiff's body in whatsoever place situated, and all causes of disease, be the same what they might, and evidence to the effect that a gallstone of the size of the one removed in the second operation could not have formed in the body within the time elapsing between the two operations. If this were the contract, and the evidence concerning the time required for the formation of the stone be believed, clearly the question was for the jury, conceding that the defendant made an exploration of the gallbladder and the ducts leading therefrom. If, however, the court could say as matter of law that rational beings would not enter into the contract contended for by the plaintiff, and that in law the contract was one to explore the gallducts and the ducts leading therefrom and remove such as would be found, still the court thinks the question whether it was actually performed was for the jury. The court thinks there was much evidence, of a circumstantial nature, to be sure, which tended to show that the defendant did not perform the contract even as he conceded it to be. His own testimony gave rise to a doubt whether he got as far as the ampulla of Vater in his examination of the gallducts, although he did not question that this was within the field of exploration under the contract as stated by himself. The evidence was contradictory, it was true, and its weight did not seem, in every instance, to be with the conclusions of the jury; but, the facts being for them, we must abide their verdict. The defendant did not set forth in his pleadings any different contract from that alleged by the plaintiff in his complaint, but contended himself with a general denial. Under this general denial it was competent for him to show, in order to defeat a recovery, not only that he did not make the contract contended for by the plaintiff, but what the contract entered into between them actually was. But his evidence did not necessary change the issues. It was still incumbent on the plaintiff to recover on the contract alleged, and the court did its full duty when it stated that issue to the jury, and instructed it that there could be no recovery unless the contract was proved as alleged.

Society Proceedings

NEW YORK ACADEMY OF MEDICINE

Meeting held Dec. 7, 1916

The President, DR. WALTER B. JAMES, in the Chair

PNEUMONIA

Nature of the Disease and Serum Treatment

DR. RUFUS COLE: Over 500 cases of pneumonia have been studied for the purpose of determining the relative frequency of the different types of infection. From 60 to 65 per cent. of all cases were due to pneumococci of Types I and II, from 10 to 15 per cent. to pneumococci of Type III, while the remaining 25 per cent. are due to pneumococci of Type IV. Studies have also been made to determine the frequency of the occurrence of the different types in the mouths of normal persons. Five hundred and twenty-seven persons have been examined, and pneumococci were present in the mouths of 254. Where pneumococci were present they were of the atypical group or Type IV, variety in about 25 per cent. of the cases. In 17 per cent. the pneumococci were of Type III, while in a very small number of cases, all together less than 12 per cent., they were of the so-called fixed types, I and II. Moreover, in practically all the instances in which organisms of these fixed types were found in normal mouths, it was possible to trace a close association between the person harboring them and a case of pneumonia of the same type. These pneumococci of Types I and II tend to disappear from the mouth after a short time, just as they do after a convalescence from pneumonia. The interpretation of these facts seems to be that pneumococci of Types I and II are to be considered as specific infectious diseases, just as typhoid and paratyphoid fever. In pneumonia due to organisms of Type IV, infection is probably autogenous. The interpretation of the conditions as regards pneumococci of Type III is difficult. These are organisms of high virulence, yet are quite widely distributed in healthy mouths and so far as we have been able to learn there have been no differences, immunologic or otherwise, between the organisms of this type found in healthy mouths and those found in disease. It is evident that isolation of cases due to pneumococci of Types I and II should be observed more strictly than has previously been done. In the present stage of our knowledge it is not possible to have an opinion as to whether cases due to pneumonia of Type III would be of any value or not. So far as infection with Type IV is concerned, isolation would probably have no effect.

Specific treatment may be carried out in one of two ways. Use may be made of the so-called immunity reactions, or drugs having specific harmful action on the invading bacteria may be used. The use of the immunity reaction to hasten recovery may be made in one of two ways. First, we can attempt to stimulate the infected organism itself to produce the immunity reaction more rapidly, and to a greater extent than would naturally be the case under the influence of the infection alone. The only method of doing this at present would be by the administration of vaccine; but my studies and experience convince me that little can be hoped from this method in an acute disease like pneumonia. The second method by which immune reactions might be made helpful is by the administration of the serum of animals rendered immune to the disease, and this is the method which we have employed. We now have a method for determining in each case the type of infecting organism before serum treatment is commenced. Moreover, from the standpoint of prognosis alone, such a determination of type is of great importance. Immune horse serums have now been prepared against the three important types, I, II and III. The serum against pneumococci of Type I is of high power; that of Type II is considerably less powerful, while that of Type III has very little effect, either in the test tube or in experimental animals. So far no attempt has been made to treat patients with Type III infection with serum. A limited trial has been made with serum of Type II in corresponding cases, but the results have not been promising. The use of immune serum agains

infections with Type I organisms has given very gratifying results, and our experience indicates that with proper use this serum has great therapeutic value. In the hospital of the Rockefeller Institute, seventy-eight cases have now been treated, with six deaths, a mortality of 8 per cent. When this is contrasted with the mortality of 25 per cent. which is observed in our cases due to Type I infection, before the use of the serum was begun, and the mortality of 25 and 30 per cent. in other hospitals in which the determination of the type has been made, it is evident, so far as may be judged from this number of cases, that the serum is of considerable value. These results are more striking in view of the fact that, of the six patients who died, only one could have been considered as efficiently treated in accordance with our present knowledge. In order to obtain the best results, certain rules must be observed. The serum must be given in large amounts. It must be given intravenously. Its administration must be commenced as early in the course of the disease as possible, and its use must be continued until the infection has been definitely overcome. It is a mistake to give one dose of the serum, then wait until the disease has gained great headway, and then make another abortive attempt. Before administering the serum, a small dose of normal horse serum should be given subcutaneously in order to desensitize the patient in case he may be sensitive to horse serum. Among the treated patients the incidence of empyema has been greater than among the untreated patients. This probably means that in a certain number of cases, otherwise fatal, the infection, instead of becoming general, is localized, and empyema results. Clinical experience suggests that the serum has some antitoxic action; but methods for demonstrating this are at present unknown. The fact that this serum is effective makes it theoretically possible that refinements in technic and improvements in the method of producing the serum may also make the immune serum effective in infection due to the other fixed types.

Use of Digitalis in Pneumonia

DR. ALFRED E. COHN: One can tell that digitalis is acting before the onset of symptoms disturbing to the patient. The evidence of this consists primarily in the change of the T wave of the electrocardiogram. When this change take place, the P-R interval begins to lengthen, but usually the T wave change comes first. We have applied these criteria to a study of the action of digitalis in pneumonia. We first endevored to show whether the drug acted and then to show whether it acted beneficially. We found that it required 1 gm. of digitalis at 0.4 gm. a day to accelerate the T wave and also the P-R time. What we had then to show was that in pneumonia with fever, with enough digitalis, changes did occur, and that in pneumonia with fever, with no digitalis, no changes occurred. This we have now been able to show. When digitalis is given, the T wave is lengthened, and the lengthening may go on to the production of heart block. Without digitalis we observed no instance of heart block in about 500 cases. Those cases in which it had been reported that heart block took place bore out this contention, for with a single exception all had a sufficiency of digitalis. Furthermore, the evidence shows that heart block does not occur until a sufficiency of digitalis has been given. When it occurs, it does no ultimate harm. It should usually be possible, however, to avoid it. We found auricular fibrillation in twelve cases out of 123, or about 9.7 per cent. When it occurred, the pulse rate rose immediately, high enough to alter the prospect of recovery. It was also shown that in nonfebrile cases of pneumonia with auricular fibrillation digitalis caused a fall in the V_s rate. This could not be expected in every case, nor could the reason for its failure to act be given easily. When fever was present it did not interfere with the action of the digitalis. Auricular fibrillation might develop spontaneously in pneumonia. Digitalis is not responsible. Auricular fibrillation might disappear even after digitalis has been taken. Auricular fibrillation, if controlled, is not fatal. Even when the disease is fatal, patients recover from the irregularity before death. Digitalis does not do harm and may be life-saving. As a result of these experiences, the hospital has for the time being adopted the following rules in the treatment of pneumonia: 1. Digitalis is given to all patients as a routine. 2. If patients are treated early they are given 1 gm. at the rate of 0.5 gm. daily. 3. If patients are not seen until later, they are given 1 gm. on the first day. 4. If an indication arises later, digitalis is given again at the rate of 0.5 gm. a day until the indication is satisfied, but it is not continued beyond 2 gm. The study shows that digitalis acts, and that, under special circumstances, which are apparently not infrequent, its action is beneficial.

Treatment of Pneumonia by Ethylhydrocuprein

DR. ALAN M. CHESNEY: These studies are based on twenty-eight cases, and were carried out in collaboration with Dr. Henry E. Moore. The results show that a bactericidal action for pneumococci can be secured in the blood serum of patients if they are given an amount of the drug represented by 0.024 gm. per kilogram of body weight per twenty-four hours. This amount was sufficient in every case to produce the result sought for within twenty-four hours, and to maintain it constantly during treatment. Furthermore, it was demonstrated that the time of appearance of bactericidal action might be shortened, provided the first dose was relatively large and was followed at intervals of not more than three hours by smaller amounts. Thus for a person of average size the amount administered in twenty-four hours must be 1.5 gm., and during the first twenty-four hours the best method of regulation would be to give an initial dose of 0.45 gm. and follow it at intervals of three hours by individual doses of 0.15 gm. During the second period of twenty-four hours the drug could be given in doses of 0.15 gm. The hydrochlorid was much more readily absorbed than the base, and hence is to be preferred. The oral route of administration has been found to be more satisfactory than the intramuscular route, since, for some reason, the bactericidal action appears in the patient's serum much more quickly when the drug is given by mouth than when given intramuscularly. In three cases the pericardial fluid was found to equal the blood in its pneumococcidal action.

DISCUSSION ON PNEUMONIA

DR. DAVID BOVAIRD, JR.: The three main objects to be kept in view in treating this disease are: First, we must make an effort to control the extent of the invasion of the lungs. This has been attempted by the use of external applications of various kinds, by medicines and by antiseptics, the bactericidal action of which it was hoped would limit the action of the bacteria in the lungs and would overcome the invading organisms. Second, we have sought in various ways to control the fever and other constitutional effects of the toxemia by hydrotherapy, by drugs, and by fresh air. Third, efforts are made toward the control of the circulation. Of all our efforts made in this direction, the only thing that has survived is the use of digitalis. In order to establish a foundation for comparison, I have taken the records of over 200 cases of lobar pneumonia treated in the Presbyterian Hospital just previous to the introduction of the serum treatment. One hundred of these cases in adults showed a mortality of 30 per cent. Then we began grouping the cases along the lines which Dr. Cole has described, and we found that the mortality in this series was 8 per cent., practically the same as in the 100 cases immediately preceding. Within the last eighteen months we have treated fifteen cases of Group I pneumococcus pneumonia with the appropriate serum and have had a mortality of two, one patient being a man, aged 77, who had a complicating empyema, and the other, a patient in the surgical side of the hospital. There occurred during the same period twenty-five cases in which the serum treatment was not given, and these showed a mortality of 28 per cent., which would have been higher had it not been for the fact that some of these patients were children. It seems that we may expect a mortality of 30 per cent. in untreated cases; in the cases in which serum was given, the mortality was 14 per cent. We have had three cases during the past three months that impressed us especially with the fact that the serum has some definite specific action. The first patient was a man, aged 28, with a right upper lobe

pneumonia, whose temperature rose to 108.4 F. He was given serum on the fifth day, two injections, after which his temperature fell and remained down, and he made an excellent recovery. The second patient was a woman who came in on the second day of her pneumonia and received serum on the third day. Her temperature fell almost immediately and remained down, though undoubtedly she had a frank lobar pneumonia. The third patient was an orderly in the hospital. He received serum within thirty-six hours of the onset of the disease. He received two injections on the second day; his temperature fell almost immediately. In forty-eight hours it reached normal and he made a rapid recovery. Such experiences have been quite ample to convince every one on the staff that in pneumonia due to pneumonocci of Group I we have in the serum a remedy of very decided value.

DR. L. EMMETT HOLT: In times past the diarrheal diseases have taken first place in the mortality of young children. In recent times, especially during the last five years in New York, there has been a steady fall in the curve from diarrheal diseases, while the curve of mortality from respiratory diseases, especially pneumonia, has steadily risen. Thus far this year, for the first time the deaths from respiratory diseases greatly exceed those from diarrheal diseases. To November 1 of this year there have occurred 2,246 deaths from diarrhea in infants under 1 year of age, and 2,523 deaths from respiratory diseases. Under 2 years the mortality from diarrheal diseases was 2,642, while from respiratory diseases it was 3,820. In addition we must take into consideration that we still have November and December to account for, months in which deaths from diarrhea are infrequent, while respiratory deaths are constantly on the increase. The indications are that the mortality of infants under 2 years of age from respiratory diseases for the year will be at least 1,300 greater than from diarrheal diseases. The deaths from all contagious diseases to November 1, including those from poliomyelitis, were but 1,012, a little more than one-fourth those from respiratory diseases. Pneumonia has thus clearly become the most important disease of young children. This disease at this age is not often the clear-cut lobar pneumonia, due to one of the four groups of pneumococci, which one meets in the adult; it is usually a mixed infection. There are found other organisms which add much to the severity of the disease and modify its clinical course, making it less amenable to treatment than the same disease in the adult. Observations made at the Babies' Hospital have shown that about 75 per cent. of the pneumococcus infections in children under 3 years of age belong to Group IV. It therefore seems that serum treatment as yet offers little prospect of help in pneumonia in the early years of life, first, because one so frequently has to deal with a mixed infection, and, second, because the pneumococci most often belong to Type IV. Against this, as Dr. Cole has shown, it is obviously impossible to provide a specific serum. Children frequently show pneumococci of Type IV probably because of the wide prevalence of the organism and the extreme susceptibility of the patients. This brings up the question of the prevention of respiratory disease in young children. It is known that many adults harbor pneumococci of Type IV, but do not develop the disease. Many times a child may at first show only the respiratory symptoms of a common cold, and yet pneumonia will supervene and may prove fatal, not because of the virulence of the infecting organism, but because of the susceptibility of the individual.

DR. ROBERT H. HALSEY: Cases of pneumonia may be divided into two classes: first, those in which the heart shows no difficulty as the disease progresses, and, second, cases in which changes in the heart occur. In the great majority of the cases of the first class it is unnecessary to use digitalis. I am convinced of this because I have worked with the electrocardiograph and know its value in recording and measuring the changes. There is, however, a time when digitalis is necessary. But if digitalis is used in every case, heart block will develop in some of the cases, as has been demonstrated. One does not seem to be justified in such cases in adding an additional burden, of dissociation of auricle and ventricle, to a heart already under stress. The cases with fibrillating auricle may be divided into those that have the fibrillation before the disease starts and those in which the fibrillation starts after the disease has begun. In the latter class of cases, digitalis controls the condition nicely, and should be used until control is obtained. In the former class, which has the fibrillation before the disease starts and will have it afterward, digitalis is indicated and should be employed, if required, to retain control while in health.

DR. ARTHUR F. CHACE: A word of warning should be sounded against the use of stock polyvalent vaccines. The polyvalent vaccine offers a great temptation to the general practitioner, and emphasis should be laid on the fact that it is impossible to provide a stock vaccine that is of dependable therapeutic value. It is possible to accomplish much if we avail ourselves of the combined action of serum and ethylhydrocuprein.

DR. RUFUS COLE: I object to the use of the polyvalent serum because it is an additional burden on the patient without the production of any good result.

WESTERN SURGICAL ASSOCIATION

Twenty-Sixth Annual Meeting, held at St. Paul, Dec. 13-16, 1916

The President, DR. L. W. LITTIG, Davenport, Iowa, in the Chair

New Instrument for the Application of the Sewing Machine Stitch in Gastric and Intestinal Surgery

DR. E. P. QUAIN, Bismarck, N. D.: The results in forty cases have been very satisfactory. Leakage is effectively prevented by this double, interlocking suture. The time previously consumed for making a gastro-enterostomy has been reduced by nearly one half. To prove the hemostatic efficacy of the method in gastro-enterostomy, a gastric lavage was given to the patients with duodenal ulcer immediately after the operation, and repeated about two hours later. With the exception of a few shreds of clots in two or three instances, such as might easily have escaped during the operation performed without clamps, there was no macroscopic evidence of oozing. Occasional emesis after the operation gave the same negative evidence. Previous observations with other methods of suturing had rarely, if ever, shown such complete absence of bleeding in the postoperative vomitus.

Serous Meningitis Following Traumatism

DR. CHARLES H. LEMON, Milwaukee, Wis.: A man fell 40 feet from a coal dock and was picked up unconscious with a compound fracture of the right wrist. He remained unconscious only a few minutes, was removed to a hospital, was operated on for the fracture under an anesthetic, and for five days was apparently normal. On the sixth day he began to have headache, and this was followed by a progressive right hemiplegia, which was complete on the ninth day. Believing that he had probably fractured his skull on the left side and that a hemorrhage was taking place from the posterior branch of the middle meningeal artery, I advised an operation to remove the blood clot. This was declined. The following day the man became totally unconscious, and when he was in a state of coma, permission was given to operate. I trephined the skull over the middle fossa and found no clot. The cortex of the brain, on the opening of the dura, presented an ecchymotic appearance. No cerebrospinal fluid appeared. I passed a grooved director between the dura and brain, and a few drops of cerebrospinal fluid escaped. In a few minutes this increased to a small stream. At the end of fifteen minutes the patient began to show signs of life. The breathing improved. The operation was performed without an anesthetic. A drain was inserted beneath the brain and the wound closed. The man made an uneventful recovery and is still living.

DISCUSSION

DR. A. E. HALSTEAD, Chicago: My conception of a serous meningitis is entirely different from that of Dr. Lemon's. A serous meningitis, as I understand it, is caused by a toxemia or a mild infection in which there is no pus or no gross manifestations of infection in the meninges. I have operated

in several of these cases. I have also seen cases of diffuse meningitis in which the fluid was still serous or retained the characteristics of normal cerebrospinal fluid. These cases occurred in the terminal stage of an infection. I think a weak point in the doctor's paper is the fact that he has no necropsy to sustain his diagnosis of such a traumatic serous meningitis.

DR. JOHN L. YATES, Milwaukee, Wis.: In these cases of increased intracranial pressure, when there is no foreign body, there is a disproportion in the amount of cerebrospinal fluid secreted and the amount of fluid absorbed. This may be the result of irritation, chemical or bacterial infection, or trauma.

DR. FREDERICK A. DUNSMOOR, Minneapolis: Dr. Frank Hamilton, in 1873, impressed on me the point that whenever a man who has had a slight injury of his head is bewildered, or even unconscious for a moment, and then gets up and walks off, there is a grave possibility of tragic symptoms developing later.

DR. M. M. GHENT, St. Paul: Dr. Halstead said that we have no postmortem reports to sustain the diagnosis of traumatic serous meningitis. One drunken miner struck another on the back of the head with a large rock. The man was stunned; I saw him about five minutes afterward. He was able to talk. There was a slight abrasion, not more than half an inch long, just back of the ear. He was put to bed. On the second day he complained of headache; on the third day he had a little fever and began vomiting. He was taken to the hospital, and lived seven days. We opened the skull and found no fracture, no hemorrhage, but the brain on the injured side was just like putty, while the opposite side seemed to be entirely normal.

Cardiolysis

DR. JOHN E. SUMMERS, Omaha: Cardiolysis, first performed by Peterson at the suggestion of Brauer, in 1902, is done in cases of chronic adhesive mediastinopericarditis. The heart muscle in two cases reported by me was in an advanced, degenerated condition. Nothwithstanding this, one patient, a man, lived four years and ten months after operation, was able during this period to earn his living, and was almost free from heart symptoms until the last several months of his life. The second patient, a young woman, lived nearly a year after operation, had symptomatically made a recovery so far as the function of the heart was concerned, being able to drive a large automobile from Omaha to Denver, 600 miles, cross the Rocky Mountains, and travel to a height of 12,000 feet without discomfort. Overstrain, however, brought on an attack of decompensation which proved fatal.

DISCUSSION

DR. WILLIAM R. CUBBINS, Chicago: Dr. Summers is to be congratulated on undertaking operative interference in this case. There is no question that the relief will be marked when we have enough courage to remove the chest wall as it should be done.

DR. R. C. COFFEY, Portland, Ore.: Not all of these cases have been reported. Dr. William J. Mayo and I were attending a clinic in New York when we saw this operation performed by a prominent surgeon. The anesthetic was intratracheal, and just about the time the chest wall was completely removed the patient closed his eyes and never breathed again. That case has not been reported.

DR. GEORGE M. GRAY, Kansas City, Kan.: In another case I resected, as I remember, the fourth, fifth and sixth ribs. The operation was done about a year ago under local anesthesia. The patient, a man, aged 32, improved markedly.

Factors Which Determine the Extent and Duration of Peritoneal Adhesions

DR. ARTHUR E. HERTZLER, Kansas City, Mo.: The principles governing the formation of adhesions are the same as those which pertain to wound healing. The exudate forming about wounded surfaces must coagulate to form fibrillar fibrin as the preliminary step. If this is interfered with, primary healing does not take place. Permanent adhesions correspond to healing by first intention, while temporary ones parallel healing by second intention. The purpose of permanent adhesions is to repair solutions of continuity, while temporary adhesions serve the purpose of preventing the spread of infection. When repair is desired, the factors inimical to blood coagulation must be kept from the site of the wound. Temporary adhesions release themselves after their function has been performed, and it is not necessary to break them up when operating in infected tissue in order to prevent subsequent deleterious consequences.

Position in Abdominal Drainage

DR. ROLAND HILL, St. Louis: The lateral position, in which the patient is placed on the right side, is very efficient. In this position the head of the bed is slightly elevated, about 30 degrees, and a pillow is placed under the region of the liver, so as to prevent accumulation of fluid in the kidney region. In a series of fifteen cases treated in the lateral position, there was an absence of mortality. In a series of forty-two drainage cases treated in the abdominal position, there were two deaths. In forty-seven cases treated in the Fowler position, there were five deaths.

Radical Cure of Chronic Osteomyelitis

DR. EMIL G. BECK, Chicago: I have adopted the following plan in dealing with these cases: First, I try the most conservative treatment, namely, the injection of bismuth paste, and am able to clean up 60 per cent. of the cases. If this method has been given a fair trial for several months and there is no improvement, the remaining 40 per cent. of cases are treated by a most radical operation. I expose the diseased area by an adequate skin flap incision that I may remove every vestige of the diseased bone, under ocular inspection. I do not permit any dead space in the resected cavity, and I remove enough bone to make a flat surface of bone. Then I implant the skin flap against the bone, packing gauze against it to keep it in contact. I use no suture material, and leave the wound widely gaping and permit granulations to form on the denuded surfaces. The skin on the granulating surfaces is reproduced by means of adhesive plaster dressing, which is changed daily, and is the best form of epidermization of large denuded areas. I use no skin grafts.

Traumatic Surgery of Liver

DR. OLIVER J. FAY, Des Moines, Iowa: Operations on the injured liver should be performed with all the speed compatible with gentleness and a thorough examination of the abdominal viscera. Temporary control of the hemorrhage is usually to be obtained by tamponing. Suture of the wound, ligation of the larger vessels, and tamponing are the most serviceable definitive procedures. Tamponing is the method employed in the largest number of cases; it effects temporary hemostasis until other measures can be employed; it controls hemorrhage from wounds which are inaccessible, or which could be reached only by an unwarranted incision; it is the least time consuming procedure, and is the method of choice when the patient is in a precarious condition, and speed is the first essential. It is a valuable adjuvant to suture of a wound when hemostasis is not assured, or the possible presence of other liver injuries cannot be excluded, and in every case in which the simple ligation of vessels has been employed, it is essential when the presence of infection cannot be excluded.

The Open Hospital

DR. LAWRENCE W. LITTIG, Davenport, Iowa: The most important problem before the medical profession at the present time is the investigation and classification of hospitals. The possibility of such investigation has already produced fruit, and signs of life are already evident in hospital boards and hospital staffs that had long been dead, so far as the spirit of improvement and progress is concerned. The fifth or intern year, as already adopted by an increasing number of medical schools and state boards, will have even a more decided influence for good in the hospitals that desire interns, since both the college and the state board will insist on knowing about the character of the work done in a hospital before it is put on the accredited list. But there are many hospitals that do not care for interns, and these can be

reached by the state board, through the training school, since practically all of the hospitals under consideration conduct training schools, the graduates of which present themselves before the state board for examination for credentials as registered nurses. Publicity is the only influence that will reach all of the hospitals under consideration, and stimulate all hospital boards and hospital staffs to action.

Cyst of the Suprarenals

DR. HERMAN E. PEARSE, Kansas City, Mo.: Hemorrhage is the foundation of the pathogenesis of suprarenal cysts. The fully developed cyst is usually, as in my case, recognized only when the hemorrhage has been repeated from time to time, and operation is at last done for a demonstrable tumor. The condition of suprarenal hemorrhage being concealed, retroperitoneal, and not showing in any excretion of the body, must of necessity be occasionally unrecognized in its early stages, and may often, if suspected and looked for, be recognized as the foundation of phenomena otherwise quite puzzling to the examiner.

Surgical Treatment of Banti's Disease: Report of Three Cases

DR. CHARLES D. LOCKWOOD, Pasadena, Calif.: I have collected reports of thirty-eight cases from the literature which, with three cases of my own, make forty-one in all. Six of these patients died as a result of operation, making an operative mortality of 14.5 per cent. Operation done in the first stage of the disease is curative in a large percentage of cases, and the operative mortality is no higher than in other major abdominal operations. In the second and third stages of the disease, there is still a large percentage of recoveries with great improvement of health.

Intracanalicular Papilloma of the Breast

DR. E. STARR JUDD, Rochester, Minn.: In fifty of 100 consecutive cases of discharging nipples, a serohemorrhagic discharge was present, and in the remaining fifty some other form of discharge was described. Carcinoma appeared to be the most common lesion producing a discharge from the nipple; it was almost invariably associated, however, with a tumor in the breast. Usually the tumor was present some time before the discharge began. In 26 per cent. of these cases chronic cystic mastitis was present; twelve of them were in the first group of fifty, and fourteen in the second. In some of our cases of chronic cystic mastitis, however, the discharge may have been from a duct papilloma, for often these tumors are very small and might easily have been overlooked. This series seems to lend evidence to the contention that a hemorrhagic or serohemorrhagic discharge from the nipple in the absence of a palpable tumor is most often produced by benign intracanalicular papilloma. In view of this fact, treatment should be conservative, particularly in young women. In older patients, especially if the condition is associated with chronic cystic mastitis, the mammary gland should be removed. If there are indications of malignant changes, a radical operation is advisable.

The Radical Cautery Operation in Breast Carcinoma

DR. JAMES F. PERCY, Galesburg, Ill.: The most important improvement that can be made in the technic of the modern operation for breast carcinoma is the use of the hot knife in place of the cold steel knife. The wound should be left open in order that small points of recurrence may be watched for which, if they appear, can be cocainized and treated by heat at once. After the wound has been made, no matter how extensive, epithelization can be hastened by covering with strips of adhesive plaster, as recommended by Beck. Carcinoma is most prone to recur wherever blood vessels are left in the wound. Practically every recurrence is about a blood vessel. I would urge that no bleeding vessel be clamped with a hemostat, but it is more important that the bleeding should be arrested by the application of the cautery knife, which not only stops the hemorrhage, but also kills the most common origin for the cancer nidus in its incipiency. I would advise that a roentgenogram be made of the thorax. If metastasis into the lung, pleura or ribs is disclosed, the treatment should consist of massive doses of the Roentgen ray administered by an expert roentgenologist. The four most essential points in the technic are, first, to mark out on the iodin covered skin surface with the handle of the steel knife the limits of the incision to be made; second, do not cut with the cautery knife from above downward into the skin in following this line, but from within outward; third, and very important, in dissecting about the axillary vessels and brachial plexus, hold the parts that are to be removed with the fingers of the free hand, encased in a medium-weight rubber glove, and keep the fingers close to the cautery knife. This is the most practical way of gaging the degree of temperature that the tissues and blood vessels will stand without being injured. Fourth, apply the heat until all the tissues that were fixed by the disease are freely movable. To do otherwise simply means that heat dissemination in the most effective way has not been obtained.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

December, 1916, LXXIV, No. 6

1 *Appendicular Abscess; Hemorrhage; Death. M. Tate, Cincinnati. —p. 933.
2 *Drainage for Pus Conditions in Pelvis During Pregnancy. F. Reder, St. Louis.—p. 935.
3 *Case of Rupture of Uterus; Sepsis; Operation; Recovery. R. B. Hall, Cincinnati.—p. 942.
4 *Rupture of Uterus in Cesareanized Women; Review of Literature. J. N. Bell, Detroit.—p. 950.
5 *Rupture of Cesarean Scar. A. J. Rongy, New York.—p. 954.
6 Postmortem Cesarean Section; Report of Two Cases. O. G. Pfaff, Indianapolis.—p. 967.
7 *Gunshot Wounds of Abdomen in Pregnant Women. L. H. Smead, Toledo.—p. 972.
8 Teaching Obstetrics Under Improved Conditions. H. Schwarz, St. Louis.—p. 981.
9 Lymph Nodes Extract; Its Preparation and Therapeutic Action. D. Holden, Oakland, Cal.—p. 989.
10 *Blood Pressures During Operations. C. W. Moots, Toledo.—p. 996.
11 Diagnosis of Pelvic Troubles. J. H. Carstens, Detroit.—p. 1002.
12 Care of Patients Before and After Operation. H. W. Yates, Detroit.—p. 1006.
13 Operative Judgment as Factor in Surgical Mortality and Morbidity. R. E. Skeel, Cleveland.—p. 1012.
14 *Removal of Appendix for Cure of Trifacial Neuralgia and Other Nerve Pain About Head and Face. M. I. Rosenthal, Fort Wayne, Ind.—p. 1031.
15 Pemphigus Neonatorum. F. H. Falls, Chicago.—p. 1048.

1, 2 and 3. Abstracted in THE JOURNAL, Oct. 21, 1916, p. 1251.

4. Abstracted in THE JOURNAL, Oct. 21, 1916, p. 1252.

5, 7 and 10. Abstracted in THE JOURNAL, Oct. 28, 1916, p. 1324.

14. Abstracted in THE JOURNAL, Oct. 28, 1916, p. 1326.

American Journal of Physiology, Baltimore

December, 1916, XLII, No. 1

16 *New Evidence in Favor of Chief Vasoconstrictor Center in Brain. S. W. Ranson, Chicago.—p. 1.
17 *Afferent Spinal Path for Depressor Reflex. S. W. Ranson and P. R. Billingsley, Chicago.—p. 9.
18 *Id. S. W. Ranson and P. R. Billingsley, Chicago.—p. 16.
19 Oscillatory Variations in Contractions of Rhythmically Stimulated Muscle. W. B. Cannon and C. M. Gruber, Boston.—p. 26.
20 *Factors Affecting Coagulation Time of Blood: Epinephrin. G. P. Grabfield, Boston.—p. 46.
21 Physiology of Stomach. Gastric Hunger Contractions in Amphibia and Reptilia. T. L. Patterson, Kingston, Canada.—p. 56.
22 Physiology of Atrioventricular Connection in Turtle. H. Laurens, New Haven, Conn.—p. 89.
23 *Some Features of Osteogenesis in Light of Vital Staining. P. G. Shipley and C. C. Macklin, Baltimore.—p. 117.
24 Staining of Amphibian Larvae with Benzidine Dyes: Behavior of Lymphatic Endothelium. G. B. Wislocki, Baltimore.—p. 124.
25 *Physiology of Mammalian Auricle. Influence of Vagus Nerves on Fractionate Contraction of Right Auricle. C. J. Wiggers, New York.—p. 133.

26 *Id. Time Relations of Auricular Systole. C. J. Wiggers, New York.—p. 141.
27 Physiology of Reproduction in Birds, Variations in Chemical Composition of Reproductive Tissues in Relation to Variations in Functional Activity. O. Riddle and J. V. Lawrence, Chicago. —p. 151.
28 Conditions Involved in Accumulation of Dissolved Substances in Blood. Relation of Acidity to Retention of Sugar and of Urea by Colloids of Blood and Kidney. E. B. Reemelin and R. Isaacs, Cincinnati.—p. 163.
29 *Vagus Nerves in Pneumonia. W. T. Porter and L. H. Newburgh, Boston.—p. 175.

16, 17 and 18. **Afferent Spinal Paths and Vasomotor Reflexes.**—Experiments made by Ranson and Billingsley resulted in the following observations. Afferent pressor impulses travel up the spinal cord in the apex of the posterior horn on both sides of the cord but somewhat better homolaterally. It is probable that a small portion of the pressor impulses passes directly forward through the gray matter to the efferent vasomotor neurones of the white rami. Most of the pressor impulses ascend through the apical path in the posterior horn to the vasoconstrictor center of the brain. There is some evidence which points to the location of the reflex vasoconstrictor center in the region of the fovea inferior in the floor of the fourth ventricle. The efferent path from the vasoconstrictor center to the vasomotor neurones of the white rami is located in the ventral or lateral funiculi. The depressor path is located in the ventral part of the lateral funiculus and its conduction is bilateral, although somewhat better on the contralateral side as indicated by the results of hemisection. There is some evidence that a separate vasodilator center may exist in the region of the area postrema lateral to the obex in the floor of the fourth ventricle. Weak stimulation of an afferent spinal nerve causes a drop in blood pressure which is a true vasomotor reflex and independent of respiratory movements. A drop in blood pressure obtained from strong stimulation may be due to excessive respiratory movements. True pressor reflexes are produced only by strong stimulation. There is little evidence in favor of the conception of two kinds of afferent vasomotor fibers and considerable evidence against it.

The glossopharyngeal and vagus nerves and the depressor branch of the latter are all visceral nerves and are connected with the visceral afferent column in the medulla, while the fifth cranial and the spinal nerves are all connected with the somatic afferent column. This difference in the central connections of the two groups of nerves is sufficient to account for the difference in the vasomotor reactions obtained from them. No clearly defined path for afferent impulses to the respiratory center could be found. The fibers which carry these impulses seem to be somewhat widely scattered in the cord. In the cat pain conduction in the spinal cord is bilateral and effected through a series of short relays. For a few days following bilateral injury to the apices of the posterior gray columns there is hyperesthesia of the hind limbs and all parts of the body behind the lesion.

20. **Effect of Epinephrin on Coagulation.**—Grabfield found that the intravenous administration of minimal doses of epinephrin (0.143 c.c. of a 1:100,000 solution per kilo) decreases coagulation time by increasing the amount of prothrombin in the circulating blood.

23. **Osteogenesis in Light Vital Staining.**—Young and growing animals were stained by Shipley and Macklin with azo dyestuffs and metallic colloids and the young osseous tissue was studied. A report of such a histologic study is presented in this paper. The avidity with which cells eat the vital dye granules places them in the category of macrophages, and demonstrates the phagocytosis of which they are capable. The osseous tissue is stained very darkly, and this color is much more marked in the growing than in the fully developed bone. Especially dense staining marks the actively growing areas of the bone. The primary ossification centers are stained only if they are areas of osteoblastic activity at the time of the giving of the dye. This is most evident in the thin bones of the developing skull where the primary centers are almost without color and the rapidly advancing edge of the membrane bone is heavily stained. It was expected that the osteoclasts would be found loaded with blue granules. Instead of this no blue at all was to be seen in their bodies. In other words these cells are nontrypanophilic and nonphagocytic. They can therefore not be classed with the pyrrhol cells on a physiologic basis.

The only cells which manifested the characteristic trypanophil reaction were the ordinary reticulo-endothelial cells of the marrow reticulum. Though these were everywhere present throughout the marrow cavities of the young bone, they seemed to be most numerous in the areas where erosion of cartilage and bone was going on most actively. At the margin between cartilage and bone at the epiphysis there was a narrow zone in which these macrophages were very numerous, and a distinct line of them could be made out along the edge of the cartilage to which they were apparently closely applied. In a region of the new endochondral bone, just behind the advancing osseous border, namely, in the region in which the new spicules of endochondral bone were being most actively resorbed, they were more thickly grouped than in the rest of the marrow cavity. The pyrrhol cells or macrophages may therefore be considered to take some part in osteogenesis and it is believed that they ingest the débris and assist in clearing it away. Any office of the osteoclasts in the resorption of calcified cartilage or bone must be performed by the agency of chemical solution or mechanical erosion through pressure exerted by them on the material which is being broken down.

25. **Influence of Vagus on Auricle.**—The depression of the mechanical contraction of the mammalian auricle which follows vagal excitation, Wiggers says, is due to an actual decrease in the contraction of the individual cardiac units. The decrease is not secondary to changes in rhythm or to alterations in conductivity. The decrease may be favored by the depression of irritability produced by vagus stimulation but is primarily due to the depressant effect of the vagus on the function of contractility.

26. **Time Relations of Auricular Systole.**—About 0.02 second after an impulse is emitted from the sino-auricular node the right auricle begins to contract, as evidenced by the rise of intra-auricular pressure. The precise onset of this mechanical shortening, Wiggers says, cannot be determined from the waves of the venous pulse, but may be approximated by the peak of the P wave taken by Lead II. This mechanical shortening is due to a series of fractionate contractions which spread across the auricle in the wake of the excitation wave. The auricle continues to shorten as long as the contracting units of cardiac tissue overbalance the relaxing units. As soon as an exact balance is established no further shortening is possible and the termination of the systole has come. This period lasts about 0.11 second. The contraction of the auricle exerts a dynamic action by elevating intra-auricular pressure. This occurs early in systole but continues for only 0.05 second; during the remainder of systole the intra-auricular pressure falls. This dynamic interval, as the period during which pressure rises is called, may be estimated from the rise of the presystolic wave of the venous pulse, a-wave, but the total duration of systole can be determined neither from the venous record or the electrocardiogram.

The auricle continues to contract after excitation of the ventricle has occurred, as shown by the fact that it terminates during the R variation of the electrocardiogram. The ventricle normally never contracts until auricular systole is completed. Occasionally ventricular systole follows immediately but usually an intersystolic interval, averaging 0.024 second, intervenes. The duration of this interval can be accurately determined neither from the jugular tracing nor from the electrocardiogram. The a-c interval of the jugular pulse in normal and regular rhythms very nearly equals or at least varies with the A_4–S_4 interval, but the latter is not a criterion of the intersystolic interval and does not vary with it.

29. **Vagus Nerves in Pneumonia.**—Since the respiratory disorder in pneumonia is manifested both in the lungs and in the respiratory bulbar center, and since these two are connected by the vagus nerves, a causal relation between the dyspnea and the exhaustion of the respiratory center was sought by Porter and Newburgh by section of these nerves. This procedure led to the discovery that section of the vagus

nerves protects the respiratory cells and prevents their exhaustion in pneumonia. Moreover in pneumonic dogs in which both vagus nerves have been cut, the rate of respiration remains normal.

Annals of Surgery, Philadelphia

December, 1916, LXIV, No. 6

30 *Tissue Fragments and Wound Infection. K. Taylor, France.—p. 641.
31 *Blood Pressure and Graphic Vasomotor Changes in Periphery During Ether Anesthesia. W. E. Muns, Columbia, Mo.—p. 645.
32 Blood Pressure and Prostatectomy. A. H. Peacock, Seattle, Wash.—p. 659.
33 Anatomy of Sinus Frontalis in Man. J. P. Schaeffer, Philadelphia.—p. 665.
34 *Tooth Germ Cysts of Jaw. M. G. Wohl, Omaha.—p. 672.
35 *Two Cases of Thoracic Aneurysm Wired Four Years Ago. W. C. Lusk, New York.—p. 680.
36 Chronic Cystic Mastitis or Abnormal Involution of Breast. P. Syms, New York.—p. 696.
37 Regressive Changes in Breast. G. Barrie, New York.—p. 707.
38 Spondylitis Deformans Relieved by Albee Operation. H. Finkelstein, New York.—p. 713.
39 Felons. G. M. Dorrance, Philadelphia.—p. 716.

30. **Tissue Fragments and Wound Infection.**—With a view to determining the relative importance of a foreign body and of dead tissue in the initiation and rate of extension of infection in wounds, experiments were undertaken by Taylor. The implantation of a sterile foreign body or a small piece of sterile dead muscle alone produced no macroscopic lesions. The implantation of a foreign body infected with tetanus bacilli, *Staphylococcus aureus, B. aerogenes-capsulatus,* or streptococci produced usually a localized abscess formation without invading the surrounding normal tissues. The addition of a small portion of dead muscle tissue in the region of the infection produced a more rapid and diffuse inflammatory process with earlier and more extensive abscess formation than the wounds containing only bacteria or those containing infected cloth. The implantation of infected cloth together with muscle tissue produced a more active and destructive lesion than the implantation of either alone. When infected with tetanus bacilli the presence of dead muscle fragments determined a high mortality. Of the two substances, cloth and devitalized muscle, in the presence of infection, the muscle produced the more acute infective process. The result of these experiments suggests that in the cleaning of fresh wounds at least as much care should be exercised to remove separated and devitalized fragments of soft tissue as is taken to remove other foreign bodies. In all operative procedures where blunt dissection is practiced it should be remembered that torn fragments of devitalized tissue may remain to become a ready soil for the incubation of any bacteria which may gain access to the wound.

31. **Blood Pressure During Ether Anesthesia.**—The purpose of Muns' investigation was to demonstrate graphically the actual changes in the condition of the peripheral circulation and in blood pressure accompanying long continued ether anesthesia, and the relation which the vasomotor changes may have to the blood pressure. He found that ordinary third stage ether anesthesia prolonged beyond one hour results in more or less marked vasodilatation in the periphery. This is a progressive change, more or less regular in character, increasing directly in proportion to the lengthening time of administration. In most cases the limit of vasodilatation is not reached seven hours after the beginning of the anesthetic, but occasionally the extreme of the condition may be reached after a shorter administration of ether. There is a direct relationship between the condition of the vasomotor control and the blood pressure. The end-result of ether depression is loss of function. The syndrome, known as postoperative shock, is a combination of the effects of excitation and depression, and varies directly with the algebraic sum of these two factors. The vasomotor center is the variable factor in bringing about the vasomotor change; the variation is directly dependent on the changes in the vasomotor center produced by ether.

34. **Tooth Germ Cysts of Jaw.**—Cystic tumors of the jaw are divided by Wohl into (*A*) inflammatory; (*B*) tooth germ (chorioblastoma); (*a*) unilocular; (*b*) multilocular; (*c*) solid. Chorioblastomatous cysts of the jaw originate from the embryonal rests of epithelial cord of enamel organ.

35. **Thoracic Aneurysm Wired.**—Both cases cited by Lusk were given antispecific treatment after the wiring operation and they developed an ability to endure very severe exertion. Special attention is called to the need for treatment of aneurysm with the antispecific remedies.

Archives of Diagnosis, New York

October, 1916, IX, No. 4

40 Clinical Diagnosis of Syphilitic Aortitis. I. J. Levy, New York.—p. 295.
41 Clinical and Laboratory Manifestations of Malignancy. A. Sturmdorf, New York.—p. 302.
42 Thymus Disease in Children; Case of Thymus Hypertrophy. H. B. Sheffield, New York.—p. 312.
43 Roentgen Diagnosis of Stomach Ulcer, Duodenal Ulcer and Stomach Cancer. I. H. Levy, Syracuse.—p. 316.
44 Tonsil as Portal of Infection Other Than Rheumatic. H. Hays, New York.—p. 323.
45 Diagnostics of Some Abdominal Diseases of Orthopedic Origin. S. Epstein, New York.—p. 327.
46 Clinical Diagnostics of Diseases of Heart. E. E. Cornwall, Brooklyn.—p. 331.

Boston Medical and Surgical Journal

December 14, 1916, CLXXV, No. 24

47 History of Growth of Antituberculosis Movement in Massachusetts. V. Y. Bowditch, Boston.—p. 847.
48 Shock at Front. W. T. Porter, Boston.—p. 854.
49 Failing Heart Compensation During Pregnancy. C. H. Lawrence, Boston.—p. 858.
50 Etiology of Epilepsy; Condition of Teeth as Factor in Its Production; Relation to Alcoholism and Mental Defect. H. Powers, Brookline.—p. 861.
51 Case of Epidural Intraspinal Abscess of Pyogenic Origin. W. J. Mixter, Boston.—p. 864.
52 Intraspinal Epidural Abscess (Pyogenic); Case with Necropsy. J. B. Ayer and H. R. Viets, Boston.—p. 865.

December 21, 1916, No. 25

53 Workingmen's Compensation Act. J. C. Crosby, Pittsfield.—p. 883.
54 Consideration of Workingmen's Accident and Sickness Insurance in Their Relation to Medical Profession. F. J. Cotton, Boston.—p. 893.
55 History and Operation of Massachusetts Workingmen's Compensation Law. F. D. Donoghue, Boston.—p. 897.
56 Workingmen's Compensation for Accident and Sickness, from Point of View of General Practitioner. W. H. Merrill, Lawrence.—p. 902.
57 Workingmen's Compensation for Accident and Sickness, from Point of View of Organized Labor. J. P. Meade, Brockton.—p. 905.
58 Administration of Workingmen's Compensation Act by City of Cambridge. H. J. Cronin, Cambridge.—p. 906.
59 Industrial Health Legislation. F. W. Anthony, Haverhill.—p. 911.
60 Medical Department of Modern Industrial Plant. F. O. West, Woburn.—p. 914.

Indiana State Medical Association Journal, Fort Wayne

December, 1916, IX, No. 12

61 *Hyperthyroidism and Its Relation to Certain Pelvic Disorders. T. B. Eastman, Indianapolis.—p. 465.
62 *Influence of Modern Immunity Research on Surgery. M. N. Hadley, Indianapolis.—p. 470.
63 Influence of Modern Immunity Research on Medicine. C. B. Danruther, La Porte.—p. 475.
64 Blood Cultures in Epilepsy. J. A. MacDonald and S. R. Edward, Indianapolis.—p. 482.

61. Abstracted in THE JOURNAL, Oct. 21, 1916, p. 1250.

62. Abstracted in THE JOURNAL, Oct. 28, 1916, p. 1326.

Journal of Cutaneous Diseases, Boston

December, 1916, XXXIV, No. 12

65 Keratosis Blennorrhagica; Report of Case. M. Haase, Memphis, Tenn.—p. 817.
66 *Calamine Liniment. W. A. Pusey, Chicago.—p. 826.
67 Relations of Diets to Seborrhea. D. W. Montgomery, San Francisco.—p. 829.
68 Case of Darier's Disease (Keratosis Follicularis) in Its Early Stages. M. Scheer, New York.—p. 837.

66. **Calamine Liniment.**—In order to overcome the drying effect of a simple calamine lotion, Pusey uses a liniment whose formula is practically that of the common calamine lotion with the addition of olive oil and enough tragacanth to make a permanent emulsion. The essential feature of this liniment is that by utilizing the emulsifying action of

tragacanth a permanent emulsion is produced which maintains an even mixture of all the ingredients. The formula for this liniment is as follows:

	gm. or c.c.	
Pulvis tragacanthae	4	ʒ i
Phenolis et glycerini (mixed)	aa 66	♏ x
Zinci oxidi et calaminis	aa 30	ʒ i
Ol. olivae	129	ʒ iv
Aquam	q. s.	O i
Ol. bergamoti		gtt. xx-l

The few drops of phenol keep the liniment sweet indefinitely. The formula gives a thick emulsion, like very thick cream or a cod liver oil emulsion. If a thinner emulsion is desired an equally permanent one about the consistence of ordinary cream can be made by using ½ dram of tragacanth, instead of a dram, to the pint.

Journal of Nervous and Mental Disease, Lancaster, Pa.

December, 1916, XLIX, No. 6

69 *Hyperplasia of Pineal Body. H. H. Bell, St. Louis.—p. 481.
70 Types of Neurologic Cases Seen at Base Hospital. J. J. Thomas, Boston.—p. 495.
71 *Case of Posterolateral Sclerosis Following Streptococcus Infection, Transmitted to Rabbit as Myelitis. E. M. Williams, Sioux City, Iowa.—p. 503.
72 Three Cases of Familial Spastic Paralysis. C. E. Riggs, St. Paul, Minn.—p. 505.
73 *Intentional Hypertonia; Cortical Localization of Muscular Tonus. S. I. Schwab, St. Louis.—p. 510.
74 Epileptic Dementia with Recovery. D. A. Thom, Palmer, Mass.—p. 517.

69. **Hyperplasia of Pineal Body.**—The pineal gland in two cases was examined by Bell. In each instance it was enlarged and contained cysts. Bell says that in none of the organs of internal secretion are there cells with characters similar to those of cells of the pineal body. The pineal cells in young individuals are similar in number and structure to those in pineal bodies of older individuals after involution is established. Pineal cells are intimately related to fibers which resemble those of neuroglia and there are transitional forms between neuroglia cells and pineal cells. Pineal cells appear to be modified neuroglia cells. In association with the process of involution there may be tumor-like enlargement of the pineal body characterized by proliferation of the pineal cells. In association with hyperplasia of these cells there is no functional disturbance in other organs of the body.

71. **Posterolateral Sclerosis Following Streptococcus Infection.**—The first patient whose history is cited by Williams had the symptoms of a posterolateral sclerosis with no definite or evident cause. Six old roots in the anterior lower jaw, were removed and a culture made. A hemolytic streptococcus was found which, injected into a rabbit, gave a posterior paraplegia with incontinence of urine and feces fourteen days after the inoculation. Further culture from the cord did not show anything, as the rabbit was probably killed too soon after the occurrence of the paralysis (third day). The cord showed an area of myelitis and softening.

73. **Intentional Hypertonia.**—By intentional hypertonia Schwab means this: muscle groups which in a state of flaccidity or semiflaccidity shows to palpation no spasm of contracture whatever, when they become the subject of intended movement associated with emotion or desire show incontestable evidence of hypertonia, just as hypertonic muscles are seen as the result of resistance movements. There is, therefore, overaction, adductor attitudes, flexor overaction at the elbows, and all the phenomena which accompany innervation, both as to gait, attitude, facial expression, etc. This condition of intentional hypertonia is unaccompanied by any evidence, so far as the reflex or the existence of plantar extension is concerned, of involvement of the pyramidal tract except in one case. When the patient is at rest or when volition, intention, or emotion are not in force the patient's arms and legs are flaccid, hypotonic and relaxed. Schwab has seen five such cases; four patients showed some degree of mental deficiency.

Medical Record, New York

December 16, 1916, XC, No. 25

75 Personality and Behavior in Siberian Prisons. L. P. Clark, New York.—p. 1057.
76 Anterior Poliomyelitis. Principles of Treatment? R. Whitman, New York.—p. 1062.
77 Treatment of Infantile Paralysis. H. W. Wright, San Francisco.—p. 1064.
78 After-Care of Infantile Paralysis Cases. O. H. Bartine, New York.—p. 1066.
79 Fallacy of Intestinal Stasis. M. J. Synnott, Montclair, N. J.—p. 1068.
80 Present Treatment of Diabetes Mellitus. H. M. Moses, Brooklyn.—p. 1069.
81 Rôle Played by Fear in Diseases of Stomach and Intestines. L. H. Levy, New Haven, Conn.—p. 1072.
82 Prevention and Treatment of Weak Feet Occurring During Pregnancy and Puerperium. J. Grossman, New York.—p. 1074.
83 Report on Old Case of Parenchymatous Nephritis. F. M. Johnson, Boston.—p. 1075.

December 23, 1916, No. 26

84 Use of Constant Dry Heat in Inoperable Peripheral Gangrene. W. G. Thompson, New York.—p. 1103.
85 Medical Corps of Army as Career. L. P. Williamson, U. S. Army.—p. 1106.
86 Retrospections, Medical and Otherwise. A. D. Rockwell, Flushing.—p. 1109.
87 Extra-Uterine Pregnancy. E. M. Stanton, Schenectady.—p. 1112.
88 Heliophobia. F. Robbins, New York.—p. 1114.
89 Tonsillectomy Under Novocain. P. M. Lewis, New York.—p. 1116.
90 Tuberculin Dispensary. R. C. Newton, Montclair, N. J.—p. 1118.
91 Operations on Uterus and Vagina without an Anesthetic. H. A. Wade, Brooklyn.—p. 1119.
92 Bacterial Etiology of Poison Oak Dermatitis (Rhus Poisoning). L. C. Frost, Los Angeles.—p. 1121.

Nebraska State Medical Journal, Norfolk

December, 1916, I, No. 6

93 Injuries of Head; Report of Cases. F. A. Long, Madison.—p. 167.
94 Some Conclusions from One Hundred Operations for Cholecystitis. C. H. Newell, Omaha.—p. 169.
95 Immediate Repair of Perineal Lacerations. B. R. McGrath, Grand Island.—p. 174.
96 Methods Which May Be Employed to Avoid Open Operations for Fractures. J. P. Lord, Omaha.—p. 176.
97 Starvation Treatment of Diabetes; Report of Cases. R. W. Bliss, Omaha.—p. 178.
98 Therapeutic Artificial Pneumothorax in Treatment of Tuberculosis. F. M. Conlin, Omaha.—p. 184.

New York Medical Journal

December 23, 1916, CIV, No. 26

99 Present Management of Poliomyelitis Epidemic in New York City. F. Tilney and J. C. Rushmore, New York.—p. 1221.
100 Points in Diagnosis and Treatment of Poliomyelitis. B. Sachs, New York.—p. 1225.
101 South American Travel Notes. A. Schachner, Louisville, Ky.—p. 1231.
102 Surgical Treatment of Goiter. J. W. Vaughan, Detroit.—p. 1235.
103 Alleged Passing of Hypophosphites. T. J. Mays, Philadelphia.—p. 1239.
104 Some Recent Tendencies in Surgical Literature. W. F. Fowler, Rochester.—p. 1241.
105 Case of Leprosy in Connecticut. J. E. Lane, New Haven.—p. 1244.

Northwest Medicine, Seattle

December, 1916, XV, No. 12

106 Diagnosis of Kidney Disease. H. J. Whitacre, Tacoma.—p. 387.
107 *Conception of Urethral Stricture that Admits of Scientific Treatment. G. S. Peterkin, Seattle.—p. 394.
108 Vesical Fistula. G. S. Whiteside, Portland, Ore.—p. 398.
109 Pyonephritis Complicating Pregnancy. E. G. Braddock, Lewiston, Ida.—p. 400.
110 Sources of Pyuria. A. E. MacKay, Portland, Ore.—p. 402.
111 Kidney Calculus in Child of Seven Years. H. G. Lazelle, Seattle.—p. 403.
112 Diagnosis and Treatment of Chronic Gonorrhea. F. A. Goeltz, Salt Lake City.—p. 405.
113 Two Cases of Epidemic Cerebrospinal Meningitis Occurring in Portland. W. House, Portland, Ore.—p. 408.

107. **Urethral Stricture.**—A stricture, Peterkin says, signifies swelling, infiltration, not cicatricial contraction. What is the most common, yet most efficient factor, in reducing swelling, infiltration? Hot water! Every physician and surgeon, therefore, should remember the efficiency of hot water in treating stricture mechanically; also they should remember the stopcock, the compressor urethrae, is a voluntary muscle, and teach the patient to irrigate the entire urethra under hydrostatic pressure, not with a catheter, but with a glass nozzle, doing this at home, using a very hot mild antiseptic solution three or four times daily between mechanical treat-

ments and practically discontinuing the same after the mechanical treatments have ceased. Then note the quick subsidence of the infiltration, and of the symptoms, and the increased percentage of cures. For strictures that have become strictures and are strictures requiring no delineation, no science, in diagnosis, the remedy is operative.

Psychiatric Bulletin, Utica, N. Y.

October, 1916, IX, No. 4

114 *Clinical and Anatomic Features in Alzheimer's Disease and Related Conditions. C. I. Lambert, White Plains.—p. 413.
115 *Occurrence of Acetone in Urine of Acutely Insane. G. W. Mills and R. G. Wearne, Central Islip.—p. 433.
116 Mental Regression; Its Conception and Types. F. L. Wells, Waverley, Mass.—p. 445.

114. **Alzheimer's Disease.**—Lambert cites two cases, both men of 49, without significant heredity or make-up, but with a history of alcoholism. In each there developed slowly and insidiously, without attacks of unconsciousness or convulsions, a most profound dementia. The onset was first evident in inattention, indifference and absentmindedness; later became more manifest in declining efficiency, progressive impairment of memory, retention, grasp and poverty of thought, followed by aimless, restless, foolish behavior and increasing mental dilapidation which went on apace toward an apathetic dementia, incapacity to comprehend, to talk, to walk and a bedfast state in which the patient muttered and mumbled and fussed and fumbled, and pulled at his bedding, wet and soiled himself, chewed a little and gulped what was put in his mouth and vegetated for a time and died like a decerebrated animal. Among the more striking symptoms in these cases were the outstanding symptoms of agnosia, aphasia and apraxia. In two other patients, one 61 and the other 71, there likewise developed gradually, without cerebral irritation, apoplexy or paralytic phenomena, evidences of deterioration. In addition to the diffuse nonsystemic symptoms of dementia there stood out in the first case a diffuse aphasic or paraphasic disorder, largely of a sensory type at first, later of both a sensory and motor transcortical type. There was little motor or ideatory apraxia in this case. In the second case there was also considerable paraphasia and jargonaphasia but more prominent were the symptoms of motor, more particularly ideatory apraxia. There was absence of objective paralyses, although in the second case a right hemianopsia was suspected and anatomically properly so.

115. **Acetone in Urine of Acutely Insane.**—In necropsy material Mills and Wearne noted the regular appearance of casts and albumin prior to death, and postmortem they found various kidney changes, which, at least in some cases, seemed the most important pathologic finding. It, therefore, seemed that a kidney irritant or toxin was at work. The authors then found that the urine in these acute cases often contained acetone; that the acetone would appear before the casts and albumin. Treating these cases from a nephritic viewpoint was entirely unsuccessful, but from a gastro-intestinal autointoxication standpoint they had very fair success. The appearance of acetone indicates a metabolic disorder, probably dependent on a gastro-intestinal condition, and also an inherent personal fault. Its appearance shows that the toxemia is reaching a stage when ill effects on the kidneys may be expected. These will be shown simultaneously, or, in a few days, by the appearance of casts and albumin, and there is apparently some danger of the kidney change becoming chronic. Patients treated along expectant and symptomatic lines died. Treatment to improve renal functions, including diuretics, stimulants, baths, packs, cathartics, rectal irrigations, hypodermoclysis, etc., failed. Alkaline treatment, such as the administration of large amounts of soda, also gave very little benefit. The treatment eventually resolved itself into: free catharsis; free washings of the lower bowel by enemas or, preferably, saline irrigations; forcing fluids as much as possible; forced feeding with skim milk and cereals; usually oatmeal gruel, and addition of either cane sugar or lactose; use of intestinal antiseptics, preferably either thymol or betanaphthol; stimulation where necessary, sponging for temperature and other routine measures as in any serious illness.

Tennessee State Medical Association Journal, Nashville

December, 1916, IX, No. 8

117 Uterine Hemorrhage. F. D. Smythe, Memphis.—p. 307.
118 Tuberculosis of Kidney. W. C. Dixon, Nashville.—p. 311.
119 *Significance and Mismanagement of Acute Abdominal Pain. L. L. Sheddan, Knoxville.—p. 314.
120 *Intestinal Obstruction. W. M. McCabe, Nashville.—p. 320.
121 *Menstrual Disorders. L. E. Burch, Nashville.—p. 323.
122 Treatment of Eclampsia. J. T. Altman, Nashville.—p. 327.
123 Birth Control. H. Lockhart, Coalmont.—p. 331.
124 Quinin Intravenously in Treatment of Chronic Malaria; Report of Case. J. Witherspoon, Nashville.—p. 334.

119 and 120. Abstracted in THE JOURNAL, April 22, 1916, pp. 1346 and 1348.

121. Abstracted in THE JOURNAL, April 22, 1916, p. 1347.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

December 9, 1916, II, No. 2919

1 Work of National Medical Research Committee. C. Allbutt.—p. 785.
2 *Case of Arsenic Cancer. J. Bland-Sutton.—p. 788.
3 *Cases of Gunshot Wounds of Blood Vessels from Mesopotamia. O. W. J. Wynne, D. T. Richardson and G. E. Dodson.—p. 789.
4 Case of Traumatic Aneurysm Dealt with by Obliterative Arteriorrhaphy. J. C. Jefferson.—p. 794.
5 *One Hundred and Seventy Cases Operated Under Spinal Anesthesia. T. A. Weston.—p. 794.
6 Case of Comminuted Fracture of Humerus Produced by Muscular Action. N. H. Mummery and P. L. Giuseppi.—p. 795.
7 *Projectile Injuries of Blood Vessels. W. Pearson.—p. 796.
8 Physiologic Work of Ivan Petrovich Pavlov. W. M. Bayliss.—p. 799.

2. **Arsenic Cancer.**—A woman, aged 60, came under Bland-Sutton's care with a large ulcer just below the left knee; it had the usual signs of cancer of the skin. In shape and position the ulcer resembled a patch of psoriasis. The scaly, onion-like patches peculiar to this disease were present on her legs and elbows. She had suffered from psoriasis for thirty years and during this period had taken arsenic more or less continuously. In 1913 a pimple appeared at the lower border of a scaly patch on the skin, just below the patella. This pimple gradually became an ulcer that was frequently scraped and cauterized. In spite of this treatment it increased in size; in 1916 it had become a typical cancerous ulcer as big as the palm. There were enlarged lymph nodes in the groin. August 23, Bland-Sutton removed the lymph nodes from the groin, ligatured the common femoral artery, resected the upper 2 inches of the internal saphena vein at its junction with the femoral vein and amputated the limb through the middle of the thigh. Tissues from the edges of the ulcer had the microscopic characters of squamous celled cancer, but there were no cell nests. The big lymph nodes from the groin were examined and found free from cancer, but they showed the changes common to nodes enlarged from septic infection. The patient made a quick and satisfactory recovery after the amputation.

3. **Gunshot Wounds of Blood Vessels.**—Treatment of a series of twenty-one cases has suggested to the authors the conclusion that bullet wounds of large blood vessels coming under observation on an average four weeks from the date of injury most frequently show signs of either diffuse false aneurysm or arteriovenous aneurysm, and that the former and more urgent cases can be treated successfully by a local operation at this period, provided that the circulation above can be controlled efficiently either by tourniquet, digital compression, or, in the case of the upper extremity, by ligature of the main artery at some point above the lesion. Fifty per cent. of arteriovenous aneurysms benefit, temporarily at any rate, by delay in operative treatment, considering the known results of operation in these cases. Where the advent of sepsis is suspected in cases of diffuse false aneurysm, free drainage after operation is unattended by danger of secondary hemorrhage. Efficient collateral circulation is established in most cases of destructive gunshot arterial lacerations within a month of the date of injury.

5. **Operations Under Spinal Anesthesia.**—For operations on the abdomen and lower limbs the lateral posture was used for the injection; for perineal, the sitting-up posture. The height of anesthesia reached in each case was carefully noted and found to be usually the nipple line, although in some cases it extended a little higher. The average time at which anesthesia was complete was found to be three and a quarter minutes, the moment of injection being carefully recorded in each case. The duration of the anesthesia was found to be ample for the cases under consideration, lasting usually fifty to sixty minutes, though in some cases longer. Three complete fai'ures to obtain anesthesia occurred, but in each of these Weston believes that he was to blame for faulty technic, as they were all early cases. No failures occurred in the later cases. No serious untoward effects were observed either during or after the injections. A few patients experienced slight dyspnea during abdominal operations if the anesthesia reached above the nipple line, but this disappeared rapidly on slightly elevating the shoulders and head. Slight headache occurred in one or two patients after operation, but was immediately abolished by the administration of phenacetin and caffein. Weston says that if the patient be moved with extreme care no headache occurs. In each case Barker's stovain glucose solution was used.

7. **Projectile Injuries of Blood Vessels.**—During the past nine months Pearson has operated on fourteen patients for lesions of the blood vessels. All cases of aneurysm and a case of varicose aneurysm were treated by intrasaccular operation. In one case (popliteal aneurysm) restorative endo-aneurysmorrhaphy was performed; in the others "transsaccular ligation" was necessary, although in three of them suturing operations were at first attempted, and in one of these restorative endo-aneurysmorrhaphy was actually completed before it was recognized that the case was complicated by the addition of aneurysmal varix. There was no mortality in the series, and in every case the vascular lesion was cured.

Edinburgh Medical Journal

December, 1916, XVII, No. 6

9 *Histology of Disseminated Sclerosis. J. W. Dawson.—p. 377.
10 *Marked Spastic Paraplegia of Fifteen Years' Duration; Death Due to Diabetes Mellitus and Boils. B. Bramwell and J. W. Dawson.—p. 411.
11 Action of Veratrone in Treatment of Eclampsia; Report of Three Cases. W. F. T. Haultain.—p. 416.

9. **Histology of Disseminated Sclerosis.**—The tentative nature of the explanations on many points, and the fact that no uniform conception of the process can be offered, have been taken into account in formulating the following conclusions drawn by Dawson: The process underlying disseminated sclerosis is a subacute disseminated encephalomyelitis, which terminates in areas of actual and complete sclerosis. There are no sufficient grounds for distinguishing between primary and secondary forms of disseminated sclerosis. There is much to favor the view that true disseminated sclerosis is due to a specific morbid agent which calls forth a clearly defined clinical and anatomic picture; other disseminated affections of the central nervous system, such as disseminated arteriosclerotic, syphilitic, endarteritic and acute encephalomyelitic processes, may all produce a symptom complex very similar to that of disseminated sclerosis, but they, in their further course, differ from the later in the characteristic remissions and relapses; and, further, acute infective diseases, trauma, chill, shock and all known exogenous factors may act as exciting factors in lowering the resistance of the organism, and thus allowing the final determining factor to operate.

The causal agent is of the nature of a soluble toxin, and it is conveyed to the nervous tissues probably by the blood channel rather than by the lymphatics. The restriction and distribution of the pathologic process is in some way related to the selective action of the toxin on certain areas of the blood supply, or unknown factors determine an irregularly distributed paralytic dilatation, with an increased filtration through the vessel walls. Remissions and relapses necessitate the assumption of the latent presence of the morbid agent in the body, or, if this is an autogenous toxin, either its intermittent evolution or its accumulation from deficient elimination.

It is suggested that fleeting early motor paralyses and psychic symptoms may be related to the presence of areas in association paths; that remission of these symptoms is possibly due to the linking up of other association paths, or their compensation by the opening up of new paths; and, further, that the variation of the symptoms in all stages of the disease emphasizes the importance of the mental factor in the symptomatology; that the cortical areas share in the production of psychical symptoms; that volitional tremor, alterations in speech, and nystagmus, may be the result of sclerosis spreading in form the several ventricles and the aqueduct; that as the lesions are disseminated through the cerebrospinal axis the disturbances are, therefore, especially liable to affect systems which are extensive. The areolar zones, the true areolar areas, and the perivascular sieve-like areas are secondary processes, the result and not the cause of the sclerotic areas. Sites of predilection are probably related (1) to the vessels and (2) to areas in which much glia is normally present.

10. **Spastic Paraplegia; Death Due to Diabetes Mellitus and Boils.**—The case reported by Bramwell was carefully observed for seven years; most marked spastic paraplegia was the only condition present. The patient was again and again examined in the hope of detecting some of the characteristic symptoms of disseminated sclerosis. Such symptoms never developed; but postmortem examination showed the characteristic lesions in the spinal cord of disseminated sclerosis. The amount of sugar passed per diem varied from 700 to 1,300 grains. The patient died with symptoms of acetone poisoning.

Indian Journal of Medical Research, Calcutta

January, 1916, III, No. 3

12 Lesions of Biliary Passages of Rabbits Dying After Repeated Intravenous Injections of Living Vibrios. E. D. W. Greig.—p. 397.
13 Alteration in Serologic and Morphologic Characters of Strain of Vibrio. E. D. W. Greig.—p. 442.
14 Revision of Nomenclature of Indian Anophelini. S. R. Christophers.—p. 454.
15 Indian Tree-Hole Breeding Anopheles A. Barianensis. James A. (Coelodiazesis Plumbeus), Haliday. S. R. Christophers.—p. 489.
16 Male Generative Organs of Some Indian Mosquitoes. B. Prashad.—p. 497.
17 Halteres of Mosquito and Their Function. B. Prashad.—p. 503.
18 Specific Differences in Genus Musca. P. R. Awati.—p. 510.
19 Life History of Hematobia Sanguisugens, Austen. J. L. Mitter.—p. 530.
20 Life History of Bdellolarynx Sanguinolentus, Austen. J. L. Mitter.—p. 538.
21 Some Centipedes and Their Venom. J. W. Cornwall.—p. 541.

Indian Medical Gazette, Calcutta

November, 1916, LI, No. 10

22 Some Recent Advances in Cardiology. W. S. Willmore.—p. 401.
23 Supernumerary Fingers and Toes. W. Cornwall.—p. 407.
24 Cataract Operation "Old and New." W. Corry and H. Shanker.—p. 408.
25 Some Experiences in Depot Hospital. H. L. Treston.—p. 413.
26 Septic Shell Wounds. A. N. Bose.—p. 415.
27 Bullets Extracted from Sepoys in France and Mesopotamia. N. W. Mackworth.—p. 420.
28 Case of Hypertrophy of Male Breast. A. B. deCastro.—p. 420.

Journal of Tropical Medicine and Hygiene, London

December 1, 1916, XIX, No. 23

29 Need of Organized Application of Tropical Hygiene to Prevent Excessive Wastage from Disease in Armies in East. W. J. Simpson.—p. 273.

Lancet, London

December 9, 1916, II, No. 4867

30 Injuries of War. A. M. Sheild.—p. 967. To be concluded.
31 *Agglutinating Properties of Certain Serums against B. Typhosus and B. Enteritidis Gaertner (Delépine, 7160). T. T. O'Farrell.—p. 970.
32 Chronic Gonorrhea Cured by Electrolysis. C. Russ.—p. 977.
33 Case of Bullet in Sphenoidal Sinuses; Removal Through Left Nostril. H. E. Harris.—p. 978.
34 Retained Placenta in Rudimentary Horn of Uterus. M. C. S. Lawrence.—p. 979.
35 *Case of Congenital Absence of Nails. B. O'Neill.—p. 979.

31. **Agglutinating Tests in B. Typhosus.**—Out of the 270 serums of inoculated men examined by O'Farrell, 87.1 per cent. gave positive agglutination for *B. typhosus*. The serums of men inoculated twice give more positive reactions than men inoculated only once. The presence of syphilis (as indicated by a positive Wassermann) does not affect the agglutinating power of a serum for *B. typhosus*. Out of 366 serums, consisting of both inoculated and noninoculated men who either had or were suspected of having syphilis, 19.6 per cent. agglutinate *B. enteritidis* Gaertner (Delépine, 7160) when a 1 in 25 dilution is used. A much smaller percentage may agglutinate this bacillus up to a 1 in 250 dilution. None of these serums were found to affect 7160 in a higher dilution. Out of thirteen cases with a previous history of typhoid only three agglutinated 7160. These cases had had typhoid eight, ten and eighteen years, respectively, previous to the date of examination. The ten cases not agglutinating 7160 had histories of typhoid four months to twenty-two years previously. Any of the serums clumping 7160 which were examined for coagglutinins for paratyphosus A or B proved negative.

35. **Congenital Absence of Nails.**—O'Neill's patient had no nails at all on the thumbs or fingers or great toes and only tiny fragments of nails on some of the other toes. The nail beds were present on all the digits of the hands and feet, and the fragments of nails found on some of the toes were placed round the edges of the nail beds or on the nail beds themselves. The thumbs, fingers and great toes had a hooded appearance at the extremities. In the fingers and thumbs the nail bed had an upper paler part and a lower shining and more vascular part, the latter corresponding to the lunette in the nail of a normal digit. Two younger sisters, aged 25 and 6 years, respectively, were similarly afflicted. The mother had the operation of avulsion performed on the nail of one of her great toes during the time when she was carrying the subject of this note.

Medical Journal of Australia, Sydney

November 11, 1916, II, No. 20

36 Administrative Control of Pulmonary Tuberculosis in Australia. J. K. Patrick.—p. 401.

37 Insecticidal Fumigation in Ships, with Special Reference to Use of Hydrocyanic Acid and to Prevention of Ship Borne Yellow Fever. C. E. Corlette.—p. 405.

38 Thyroid Mechanism and Its Relation to Endemic and Thyrotoxic Goiter. S. Pern.—p. 409.

39 Large Ovarian Cyst. G. P. O'Day.—p. 410.

November 18, 1916, II, No. 21

40 Poliomyelitis; Epidemiology, Pathology and Symptomatology. H. D. Stephens.—p. 423.

41 Poliomyelitis; Diagnosis, Prognosis, Prophylaxis and Medical Treatment. A. J. Wood.—p. 426.

42 Poliomyelitis; Surgical Treatment. W. K. Hughes.—p. 429.

43 Case of Acute Hydrocephalus in Cerebrospinal Meningitis. R. O. Douglas.—p. 430.

Annales de Médecine, Paris

September-October, 1916, III, No. 5, pp. 461-566

44 Reflex Vasomotor and Temperature Disturbances with Paralysis and Contractures. (Des troubles vaso-moteurs et thermiques dans les paralysies et les contractures d'ordre réflexe.) J. Babinski, J. Froment and J. Heitz.—p. 461.

45 The Syndrome with Total Color Blindness. (Le syndrome "achromatopsie totale".) M. Landolt.—p. 498.

46 Technic for and Interpretation of Agglutination Tests. (Remarques sur la technique de l'agglutination des bacilles typhiques et paratyphiques.) P. P. Lévy and P. Vallery-Radot.—p. 504; (Absence ou diminution momentanée de l'agglutinabilité de certains bacilles typhiques ou paratyphiques après leur isolement de l'organisme.) Id.—p. 515.

47 War Psychoneuroses. G. Roussy and J. Lhermitte.—p. 525.

Archives des Maladies de l'Appareil Digestif, etc., Paris

1916, IX, No. 2, pp. 61-168

48 *Glycuronuria with Disease of the Liver. (La glycuronurie dans les affections hépatiques.) H. Roger.—p. 61.

49 *Cancer of the Esophagus and Cardia. (Quelques notions cliniques sur une statistique de 172 cas de cancers de l'oesophage et du cardia.) F. de M. Sarmento.—p. 71.

50 *Spasm Closing Gastro-Enterostomy. (Sur l'occlusion spasmodique de la bouche anastomotique comme cause d'insuccès de la gastro-entérostomie.) L. Urrutia.—p. 84.

51 *Cure of a Case of Hemorrhagic Rectocolitis. A. Mathieu and A.-S. Alivisatos.—p. 88.

52 Vomiting Attacks in Tabes Outside of Crises. (Vomissements par réaction colique ou par faim hausécuse, survenant en dehors des grandes crises gastriques typiques chez une malade atteinte de tabes dorsal. Hématémèse au cours d'une crise tabétique.) A. Mathieu and A.-S. Alivisatos.—p. 92.

53 *Irresistible Desire to Sleep after Eating. (La narcolepsie digestive.) R. Goiffon.—p. 95.

48. **Glycuronuria with Liver Disease.**—Roger enumerates the various factors liable to influence alimentary glycosuria, the greater or less absorbing power of the bowel, the eliminating power of the kidneys, and the power of sugar consumption by the tissues. Induced alimentary glycosuria is thus unreliable as a test, but we have learned that sugar and glycogen aid in defending the organism against poisons. In normal conditions there is enough glycogen on hand to combine with the poisons into compounds—conjugated glycuronic acids—which are comparatively harmless and are readily eliminated by the kidneys. In normal conditions the urine contains about 0.04 gm. glycuronic compounds to the liter. Most of them are conjugated with phenol and indol. The glycuronuria subsides during starvation along with the glycogen content of the liver. On a milk diet it also subsides; at the same time there is less putrefaction in the intestines. After a dose of 0.5 to 1 gm. of camphor before starchy or sweetened food, intense glycuronuria follows if the liver is functioning properly. With the Tollens and Rorive reaction it is easy to estimate and follow the proportions of glycuronic acid in the urine. He gives the exact technic, saying that the naphthoresorcin method is so sensitive that the reaction is distinct even with 0.002 gm. in a liter of water, and shows up variations even of 0.01 per thousand.

Among the clinical experiences related are the absolutely concordant findings with cirrhosis of the liver, and in 32 cases of jaundice from retention of bile. Chronic nephritis and cerebral hemorrhage do not seem to modify the glycuronuria. In 14 cases of heart disease, the glycuronuria was far below normal in the 7 severe cases with asystole. In 3 other cases of asystole the glycuronuria was normal in one and this patient recovered. The other 2 had no appreciable glycuronuria and both died. Of the 40 pregnant women examined, 65 per cent. of the 20 with stomach trouble or albuminuria with edema showed complete absence of glycuronuria; 30 per cent. had very little, and only 5 per cent. had very pronounced glycuronuria. Of the 20 healthy women, all had a little glycuronuria and it was quite pronounced in 70 per cent. These figures are startling as they show that the liver is suffering more or less in even mild pathologic cases. They emphasize the instructive importance of tests to determine the conditions in regard to elimination of glycuronic acid as a routine procedure in pregnancy, when there is anything to suggest abnormal conditions. The findings in pneumonia are suggestive also. In short, Roger declares, glycuronuria is to date the most practical index of the protecting power of the liver, and the technic for gaging it is comparatively simple and is now ready to be adopted into general practice.

The most sensitive method, albeit a little more complicated, is to add to 5 c.c. of urine in the centrifuge tube, 0.2 of ammonia water (*ammoniaque*) and then 2 c.c. of the commercial solution of lead subacetate. The tube is filled up with distilled water containing 1 per cent. ammonia water. After moderate centrifuging, the fluid is decanted and washed twice with the ammoniacal solution, centrifuging each time. Filtering may answer instead of centrifuging but it takes very much longer. The precipitate thus purified is mixed with 5 c.c. distilled water and the whitish mass resulting is poured into a test tube and, after this, 0.5 c.c. of a 1 per cent. alcoholic solution of naphtho-resorcin. The rinsings of the centrifuge tube with 5 c.c. pure hydrochloric acid are added, and the test tube is placed in the boiling water bath for fifteen minutes. It is then cooled in running water and agitated with 10 c.c. ether. The tint is yellow or slightly tends to pink if there is no glycuronic acid present in the urine. With a positive reaction, the ether turns violet, the tint more or less pronounced. This method is particularly instructive when the urine contains quantities of reducing substances. This is readily recognized by heating with a little Fehling's solution. The tint then becomes yellow, brown or greenish.

49. **Cancer of the Esophagus.**—Sarmento relates that of the 716 cases of cancer in Mathieu's service, 1910-1915, fully 20 per cent. were in the esophagus or cardia, and one in every 2.36 were in the middle third of the esophagus. Of the total 172 cases, all but twenty-five of the patients were men. The proportion of cancer cases was 716 to 8,397 patients in the

service during the six years in question. The Roentgen findings in some typical cases are reproduced. Progressive difficulty in swallowing is the most important and most constant sign of cancer of the esophagus. The survival was never longer than twelve months after dysphagia appeared.

50. **Spasmodic Closure of a Gastro-Enterostomy.**—The gastro-enterostomy proved a success only part of the time. At intervals it seemed to close up completely. The operation had been done and the pylorus shut off to aid in curing an ulcer at the pylorus. Zweig has reported a demonstrative case of the kind, cured by a sedative to relax the spasm. In the case here reported by Urrutia the gastro-enterostomy closed up by the end of the first week, and the man vomited everything taken into the stomach. A secondary operation was contemplated and the stomach was rinsed out morning and evening. Sometimes the stomach was found empty, at other times it contained all that had been ingested since the last lavage or vomiting attack. After failure of papaverin to relieve, belladonna three times a day, half an hour before meals, arrested the spasms completely, and in the first three weeks of freedom from vomiting the man regained over 15 pounds. Zweig encountered seven cases of this kind in twenty-seven patients after gastro-enterostomy, but this is the first in Urrutia's sixty gastro-enterostomies followed to date. In a number of them it was noticed during the operation that the stomach contracted spasmodically more than once while it was exposed.

51. **Treatment of Hemorrhagic Rectocolitis.**—There did not seem to be ulceration in the case reported, but the condition had grown so grave in the course of seventeen months that a fatal outcome seemed inevitable and cancer more than probable. Persevering local treatment for seven months finally cured the patient, and disproved the assumption of malignant disease. The treatment was by injection into the rectum of bismuth subgallate and zinc oxid. The patient was a woman of 43 and the rebellious bloody diarrhea had induced much emaciation. Only brief if any benefit had been derived from dietetic measures.

53. **Imperious Desire to Sleep After Eating.**—Narcolepsy is the term used by Gelineau to express a sudden imperious desire to sleep for a few moments or minutes, recurring more or less regularly. Lhermite presented a report on this subject at a neurologic congress in 1910, with full bibliography. Gelineau explained the narcolepsy as an autonomous neurosis, but others regard it merely as a symptom in various intoxications, etc. Goiffon here emphasizes its import as a sign of indigestion. He publishes a number of typical cases of this acute somnolency after eating even a small and light meal. The desire to sleep comes on so suddenly and irresistibly that it constitutes an actual danger. In one of his cases the man was chopping wood, and the irresistible desire to sleep came on him with such sudden force that the ax, dropping from his relaxed hand, cut his foot seriously. The slumber is actual sleep, not an epileptiform "absence." It lasts only a few minutes; fifteen is the average, and on waking the persons feel refreshed. There was always a history of stomach troubles in these cases, but they were of a mild type, mostly sensory-motor disturbances with deficient gastric secretion. Only four of his patients of this type had hyperchlorhydria and tardy pains. All were thin and inclined to asthenia, but the correction of the abnormal conditions in the stomach, supplemented with a little psychotherapy, cured in every case. In some of Gelineau's cases, emotional stress brought on the narcolepsy, but in Goiffon's cases the dyspepsia was evidently the exciting cause. In one case a man with hyperchlorhydria had this sudden narcolepsy occur for the first time; it lasted for twenty minutes, and when he roused he vomited quantities of blood, his first hematemesis.

Archives des Maladies du Cœur, etc., Paris

November, 1916, IX, No. 11, pp. 473-520

54 Case of Pseudoleukemic Splenic Anemia of Malarial Origin. G. Paisseau and H. Lemaire.—p. 473.

55 The Manifold Manifestations from the Oculocardiac Reflex. (Dissociation sino-auriculo-ventriculaire, extrasystoles et fibrillation auriculaire provoquées par la compression oculaire. Action favorisante de l'atropine.) M. Petzetakis.—p. 477.

Bulletin de l'Académie de Médecine, Paris

November 28, 1916, LXXVI, No. 47, pp. 403-436

56 The Predisposition to Joint Troubles as a Diathesis. (Qu'est-ce que l'arthritisme? Avec considérations sur les diathèses.) Fernet.—p. 406.

57 Extraction of Projectile in the Mediastinum or Lung. R. Le Fort. —p. 424. S. Mercadé.—p. 430.

58 Bacteriologic Study of Dysentery as Modified by the War. (Contribution à l'étude de la dysenterie. Nouveaux bacilles dysentériques, pathogènes pour les animaux d'expérience.) F. d'Hérelle.—p. 425.

59 Exophthalmic Goiter and the War. (La maladie de Basedow et la guerre.) L. Bérard.—p. 428.

60 Experimental Generalized Vaccinia in the Heifer and Monkey. (La vaccine généralisée expérimentale chez la génisse et chez le singe.) L. Camus.—p. 433.

Paris Médical

November 25, 1916, VI, No. 48, pp. 453-468

61 *Sorting Field Hospital. (De l'ambulance de triage.) A. Mignon. —p. 453.

62 Simple Device for Immobilizing Fractured Humerus. (Traitement des fractures de la diaphyse humérale.) R. Grégoire.—p. 456.

63 *Influence of Quantity and Activity of Vaccine on the Speed of Immunization. L. Camus.—p. 460.

64 Trench Fever. (Fièvre des tranchées.) R. Morichau-Beauchant. —p. 463.

61. **Sorting Station.**—Mignon discusses the arguments for and against having a special field hospital to classify and direct to specialist centers the wounded as they are brought in. His final conclusion is that such an institution is not needed during periods of comparative calm, and it would not be useful even when the wounded are being brought to it in large numbers unless there are plenty of beds available, so the severely wounded could be kept and only the minor cases sifted out and sent to the rear.

63. **To Hasten and Intensify Vaccine Immunization.**—Camus has found that given a vaccine of a known strength and using exactly the same quantities we can count with precision that the results will be the same. Changes in the quantity and in the activity of the virus bring differences in the vaccinal response. He experimented with rabbits and tested the immunity by intravenous injection. In ordinary times it is immaterial whether five days or ten days or longer are required to ensure immunization. His experiments teach that when it is important to shorten the interval, the vaccine should be exceptionally active and it might be inoculated at several points. He urges others to make practical tests of this in vaccinating children, comparing the interval before immunity to a second vaccination in children inoculated only once and those inoculated at six points.

Presse Médicale, Paris

November 30, 1916, XXIV, No. 66, pp. 537-544

65 Technic of the Carrel Treatment of Infected Wounds. P. Desfosses.—p. 537.

66 *Soap in Treatment of War Wounds. (Traitement des plaies de guerre par le savon.) M. Ratynski.—p. 540.

December 4, No. 67, pp. 545-560

67 *Diagnosis of Death on the Firing Line. (Le diagnostic de la mort sur la ligne de feu.) A. Satre. Title page.

68 *Suprarenal Insufficiency in Malaria. Paisseau and Lemaire.—p. 545.

69 *The Stimulating Phase of Atropin. Petzetakis.—p. 548.

70 Hemorrhage from Wounds of the Gluteal Artery. (Interventions pour hemorrhagies de l'artère fessière.) H. Bousquet.—p. 551.

71 Simple Fracture below War Wounds Involving Only Soft Parts. (Fracture fermée sous-jacente à une blessure de guerre n'intéressant que les parties molles.) Monprofit and L. Courty.—p. 553.

66. **Soap in Treatment of War Wounds.**—Ratynski deplores that more use is not made of soap in cleansing wounds and in local treatment afterward. His experience with it has been remarkably favorable as he describes in detail. He uses 25 gm. castile soap to the liter of water, or doubles this strength for the cleansing procedures. For local treatment he applies it in a 20 per cent. solution in which the compresses are dipped. In his 1,500 dressings of the kind the results were at least equal to those of any other methods of treatment while the invariable absence of pain is a special advantage of the soap treatment.

67. **Diagnosis of Death at the Dressing Station.**—Satre relates that in many of the wounded and shell-shock cases

the men owe their lives to the persistence with which the physician kept up artificial respiration or other means to start the vital functions anew when the man wounded in the head or spinal cord or asphyxiated by gases seemed dead beyond redemption. In some cases resuscitation was realized after four or even six hours of the continuous application of such measures. Subcutaneous injection of 10 c.c. of a 20 per cent. solution of fluorescein can be done without interrupting the artificial respiration or rhythmic traction of the tongue. [The fluorescein has to be dissolved in a dilute alkaline solution.] If there is still the slightest circulation, the stain diffuses readily and is particularly evident in the conjunctiva. "The eyeball looks like an emerald in its orbit." This encourages all concerned to keep up the life-saving measures, when without it the aids are inclined to think that not only the efforts are being wasted but that the dead body is being profaned. It is better to treat a dead man as if there was still life, than to let one live man be left for dead when he might have been saved. Another test for certain death is the change of the alkaline reaction of the spleen and liver to an acid reaction. This occurs half an hour after death and persists a long time. A fine puncture needle is pushed into the spleen or liver; the scrap of visceral pulp thus obtained is spread on blue litmus paper, drawing it apart from blood that may come with it. The pink tint is very pronounced two hours after death. Before this it may be necessary to lift up the scrap of pulp to see the change in tint under it. If this characteristic color reaction does not occur within five minutes, the spark of life is not extinct. The question of real or apparent death comes up again and again on the firing line as men perfectly sound a few minutes before, until the explosion of a shell nearby, are brought in inanimate, sometimes without any signs of physical injury.

68. **Suprarenal Insufficiency in Malaria.**—Paisseau and Lemaire affirm that the suprarenals are responsible for the attacks of coma, the algid phase and the choleriform symptoms in pernicious malaria. Necropsy has revealed acute degeneration or acute hemorrhagic disease in the suprarenals in their fatal cases of pernicious malaria. The knowledge of this acute or subacute pathologic state of the suprarenals explains many features of the clinical picture of malaria, especially the changes in the arterial tension, the asthenia, the lumbar and abdominal pains, the vomiting and diarrhea. The conclusion is inevitable that epinephrin should take its place next to quinin in treatment of severe forms of malaria.

69. **The Initial Stimulating Phase of Atropin Action.**—Petzetakis reports clinical and experimental data which confirm that atropin has first of all a stimulating action. During this initial phase it acts on the vagus nerve, and the effect is manifest in extrasystoles and dissociated functioning of sinus and auricle and of the auricle and ventricle. Testing the direct and reflex excitability of the vagus at different times reveals the initial period of hyperexcitability of the vagus manifested by the change in the heart rhythm and tendency to irregularity.

Correspondenz-Blatt für Schweizer Aerzte, Basel

December 2, 1916, XLVI, No. 49, pp. 1633-1664

72 Spurious Aneurysm from War Wounds; Forty-Three Cases. Rusca.—p. 1633.

73 *Medical Secrecy in Medicolegal Matters. (Aerztliche Fragen über die Schweigepflicht und über rechtmässige Handlungen im Sinne von Art. 192 und Art. 25 des Entwurfs zu einem Schweizerischen Strafgesetzbuch.) P. VonderMühll.—p. 1645.

73. **Medical Secrecy in Medicolegal Matters.**—This article sets forth the views of jurists and of leading physicians as recently enunciated in connection with proposed legislation in Switzerland.

Medizinische Klinik, Berlin

October 29, 1916, XII, No. 44, pp. 1143-1166

74 *Diagnosis of Typhus. (Ueber den augenblicklichen Stand der mikrobiologischen Fleckfieberdiagnose.) R. Otto.—p. 1143.

75 *Advice and Treatment of Nursing Women. (Ueber fehlerhafte Behandlung stillender Mütter.) A. H. Kettner.—p. 1147.

76 Analysis of the Functions of the Hand. M. Cohn.—p. 1151.

77 Splints Permitting Joint Functioning. (Gelenkmobilisationsschienen nach Dr. Schede.) Neumeister.—p. 1153.

74. **Diagnosis of Typhus.**—Otto discusses the present status of the microbiologic differential diagnosis of typhus, saying that microscopic examination of lice from the patient is a simple and reliable measure, as also the Weil-Felix reaction. He gives three illustrations of the microscopic findings in a typhus louse, showing the rickettsia in the epithelium of the louse intestine. The only absolutely conclusive test is the artificial infection of normal lice, but this is too complicated a procedure for common use. The finding of rickettsias in a number of lice is practically adequate for the diagnosis, without waiting for their proliferation. Louse smear preparations show up the rickettsias instructively even though we are not certain as to their nature. Otto mentions that the Wassermann reaction is sometimes positive in typhus; quite often, if active serum is used. It is not specific, as it occurs with both syphilitic and typhus organs. The precipitin reaction was always negative in his experience. The Widal agglutination test is instructive only when persistingly negative. The Weil-Felix agglutination seems to be conclusive. He got agglutination with it at 1:50 up to 1:1,600 with typhus patients, but never with other patients, even at 1:20.

75. **Advice to Nursing Women.**—Kettner denounces a number of prevailing prejudices and customs in regard to lactation, saying that the woman should merely be advised to live, eat and drink what she wishes as in health before she became pregnant, only taking a little larger quantities as she is now "living for two." At first it may be advisable to take smaller and more frequent meals, but after she is up and about the ordinary meals may be resumed. He advocates considerable exercise, especially in the open air; light sports and gardening are particularly beneficial and not used often enough by nursing women. About 1.5 liter of fluid daily is enough, including 1 liter of milk and the rest in mild beer or, better yet, pure water. During the summer, water should be taken more freely, not quenching the thirst with gruels, teas, etc., but merely with water. This applies to the infants also.

He explains that various factors combine to induce constipation after delivery. It may be regarded as physiologic, and the giving of purgatives only enhances the tendency after the immediate action is over. They have the disadvantage further that they attract the blood into the abdomen, drawing it away from the breast, where it is needed most. The purgative checks or arrests completely the work of milk production in the mammary glands, and this is the opposite of what should be done. A dose of castor oil or other purge may turn the scale against the normal development of lactation, especially if the child does not take hold well. This is most likely with the first child, and midwives and attendants often find it less trouble to give up the attempt to have the child fed at the breast. When this occurs at the first childbirth, the woman assumes as a matter of course that she is unable to nurse any of her later children. "At the same time" Kettner continues, "these infants who take hold weakly are the very ones that need prolonged breast feeding most imperatively on account of their constitutional weakness, and the war has increased the numbers of such." The bowels can be moved with enemas, but chemical purgation interferes with the development of the mammary gland function which may be under way days before delivery. If we have chronic constipation to combat, then the bowels should be regulated with mechanically acting substances rather than the chemical purges. Regulating the diet and keeping up these measures usually brings success in time while it does not interfere with lactation.

Kettner comments further on the efforts being made at various infants' hospitals, etc., to train young girls in the care of babies, saying that many mothers shrink from letting their daughters take the course from fear of contagion. This drawback can be overcome by decentralizing the work. Instead of large institutions, organizing a number of smaller establishments, like the two already at work at Charlottenburg, affiliated with the infant welfare stations. Each has only a few beds, conditions thus approximating better those in the home, and enabling the young girls to be trained practically in the duties of motherhood.

In conclusion he insists that not enough care is spent on preparing the nipples for nursing. Inappropriate clothing and nonuse render them soft, and they have to be toughened. Air and water are what is required. The clothing should be loose and light over the breasts; they should be given air baths during the day, and, several times during the day, at least on rising and retiring, the whole breast should be doused with cold water. If the nipples are particularly tender they can be dabbed in the morning with a little alcohol to harden them, and at night a little glycerin or tannin-glycerin applied to make them pliable.

At the first sign of smarting, indicating a crack in the nipple, it should be treated with alcohol without the slightest delay, or touched with a silver nitrate pencil. Salves and moisture undo what has been accomplished in toughening the nipple. The main thing, however, is that the child must be allowed to nurse the nipple as before, even if it does hurt. If the woman is very sensitive, a nipple cap can be used, and in extreme cases a local anesthetic salve may be applied half an hour before the nursing. The breast must be emptied as completely as the other. Even if phlegmonous mastitis develops, cases are known in which the phlegmon opened into a lacteal gland and the contents were taken by the child in its milk without harm. There is no need for such anxiety about the child, when there is mastitis, as is often felt. Even if operative treatment is required we should not dress the breast so nursing is impossible or warn the mother against it. The dressings should leave the nipple exposed. All antiseptics should be scrupulously avoided on account of the infant's sensitive sense of smell. The mother should be persuaded to give each breast in turn to the child as usual. It generally nurses as if nothing was wrong, or any distaste at first is soon overcome. It is remarkable that while stasis hyperemia is directly beneficial in phlegmonous processes elsewhere, stasis of milk has the opposite effect and prompt aggravation ensues. In a recent case the surgeon protested against treatment on these principles, but finally yielded and applied the dressing so the child could nurse freely. Instead of the three weeks' course he had anticipated, the process had completely healed in ten days; lactation had not been interfered with, and the weakly child had its natural food throughout and for a long time afterward, while the mother's period of suffering had been materially abbreviated.

Monatsschrift für Kinderheilkunde, Berlin

September 18, 1916, XIV, No. 2, pp. 123-170

78 *Composition of Gruels Commonly Used in Infant Feeding. (Ueber die Zusammensetzung der in der Säuglingsernährung gebräuchlichen Schleime.) H. Bratke.—p. 123.

79 *Severe Epidemic of Measles. (Klinische Beobachtungen über Erscheinung und Nachwirkung einer schweren Masernepidemie 1915 in Göttingen.) L. Landé.—p. 143.

80 Are Infants Born with Much Vernix Caseosa Particularly Liable to Skin Disease Later? (Vernix caseosa und Erythrodermie.) K. Stolte.—p. 168.

78. **Gruels in Infant Feeding.**—Bratke refers to very thin gruels made by cooking a tablespoonful of oatmeal or other grain in a pint of water, filling up the water to this measure as it evaporates. He reviews the literature on the subject, and describes his own tests and research to determine with precision the various chemical elements in gruel. The unmistakable superiority of oatmeal, barley or rice gruel seems to be due, he thinks, to the better utilization of the starch on account of the long cooking. If flour soups were cooked as long in comparison, they would be utilized equally well.

79. **Severe Epidemic of Measles.**—Landé relates that between April and November last year there were 192 children with measles or its sequels at the Göttingen children's clinic and policlinic. All ages were represented, including 4 infants between 3 and 6 months old, but over two thirds were between 6 months and 3 years old. Ten per cent. of the 192 children died and only 27 were not left with some serious complication or sequel. Several cases developed in the hospital in infants kept in adjoining cubicles, of the L. F. Meyer box system, confirming the view that the box system does not protect against measles. Pneumonia and influenza were prevalent during the epidemic, which explains the frequency of complications on the part of the lungs or bronchi. Just as in malignant scarlet fever, the fatalities seemed to be due mainly to mixed infection for which the measles prepares an exceptionally favorable field. Thirty-one of the children developed some infectious disease or it had been already installed, including whooping cough in 12 cases; in 45 there was pneumonia, with some other respiratory affection in 6; diarrhea during the prodromal period in 11; throughout the disease in 22, resembling dysentery in an additional 5, and actual dysentery in 2. There was otitis media in 26, and conjunctivitis, sometimes with ulcer of the cornea, in 9; hemorrhagic nephritis in 3, meningitis in 3, and sepsis in 13. The measles children in the homes, even of the well to do, were found in dark unventilated rooms as the popular prejudice demands protection against light and air for measles. The exact ear findings in a number of cases early in the disease are given in tabulated form. Many of the previously robust children were left pale, languid and irritable by their measles, not only their physical but their intellectual development showing impairment. Treatment was symptomatic, with care for adequate intake of fluid and food, stimulating tepid sponges, warm baths with dash of cool water or mustard bath, stimulating respiration and circulation, and preventing the child from sinking into dangerous somnolency, with efforts to ward off mixed infection by air, light and cleanliness. In 92 of the 192 cases described, the children were first brought to the hospital after the actual measles had run its course. In one such case a formerly healthy boy of 3 died six weeks after the measles from a combination of pneumonia, pleurisy, pericarditis and nephritis; another, somewhat younger, died seven months after the measles from pneumonia which had run a protracted course and he succumbed to another attack.

Münchener medizinische Wochenschrift, Munich

October 31, 1916, LXIII, No. 44, pp. 1541-1576

81 *The Arc Light in Phototherapy. (Anwendung des Kohlenbogenlichtbades bei primären und sekundären Tuberkulosen der Haut und Schleimhaut.) L. Spitzer.—p. 1541.

82 *Nephritis with Albuminuric Neuroretinitis, Eclamptic Amaurosis and Pseudo-Uremic Disturbances in Vision. (Klinische und funktionelle Studien über Nephritis. II.) H. Machwitz and M. Rosenberg.—p. 1543.

83 Quantitative Determination of Ammonia and Sulphur Compounds in the Urine. (Ueber die quantitativen Bestimmungen des Ammoniaks und der Schwefelverbindungen im Harn.) R. Weiss.—p. 1547.

84 Advantages of Universal Military Training and of Beginning It in the Schools, and of Batallions of the Weakly. (Eigene Truppenteile für Tuberkulose und Schwache.) Liebe.—p. 1548.

85 Gas Gangrene. (Zur Aetiologie und Pathogenese des Gasbrands.) H. Conradi and R. Bieling.—p. 1561.

86 *Para-Agglutination in Differential Diagnosis. (Ueber die praktische Bedeutung der Paraserumreaktionen.) K. Baerthlein.—p. 1564.

87 Vaccination Against Typhoid One of the Great Achievements in Recent Medicine. (Ueber Typhus und Schutzimpfung.) E. Schott.—p. 1567.

88 Advantages of Using Typhoid and Cholera Vaccines as Antigens in Deviation of Complement Tests. (Die Verwendung von Typhus- und Choleraimpfstoffen als Antigene bei der Komplementbindungsreaktion.) F. Kutscher and Schäfer.—p. 1570.

89 *Transmission of Relapsing Fever by Lice. (Uebertragung der Rekurrens durch Läuse.) H. Töpfer.—p. 1571.

90 Collargol Intravenously in Endocarditis. F. Klewitz.—p. 1572.

91 *Diagnosis of Gas Gangrene. Biermann.—p. 1573.

92 Protecting Sheath after Operating on a Nerve. (Zur Frage der Nerveneinscheidung mittelst Galalith.) S. Auerbach.—p. 1573.

93 Simple Splint to Correct Radial Paralysis. (Eine einfache Radialis-Schiene.) F. Staffel.—p. 1574.

94 Skeleton Cart to Convey Litter on Track. (Verwundetenbeförderung auf den Förderbahnen.) M. v. Hövel.—p. 1575.

95 *Weak Tincture of Soap Wards off Rust from Instruments. R. Frank.—p. 1575.

81. **The Carbon Arc Light in Treatment of Tuberculosis of the Skin and Mucosa.**—Spitzer reports experiences at Vienna which confirm the statements of A. Reyn of Copenhagen in regard to the therapeutic efficacy of exposure to the carbon arc light. The lamp used in the Lupus Sanitarium of which he has charge has an 80 ampere current, 60 volts, while Reyn worked only with 7 and 20 ampere currents. The stronger light enables a number of patients to be treated at once.

Spitzer was amazed at the way in which acute tuberculous ulcerations in the mouth and also the chronic granulating form healed completely in a month or two. He had six cases of these types, including one in which the ulcerations had burrowed deep into the tongue, with extensive ulceration in the lips and extreme cachexia. The arc light seems to be the sovereign cure for such cases. The quartz light gave better results in joint cases. He gave daily exposures of an hour each, beginning with fifteen minutes and increasing by fifteen minutes to an hour by the fourth day, and continuing with hour sittings. There seems to be a favorable general action in addition to the local effect. He aims to induce an erythem with casting off of the epidermis and continuous exfoliation for the first two weeks.

82. **Disturbances in Vision with Nephritis.**—The conclusions from the clinical and functional study of nephritis here reported are to the effect that albuminuric neuroretinitis seems to be causally related to that disturbance of kidney functioning which leads to azotemia. It is very seldom found with acute, diffuse glomerular nephritis, but occurs in about 50 per cent. of the cases of malignant sclerosis in the kidneys and also in chronic glomerular nephritis in the stage of insufficiency. It is thus shown to be connected with the glomeruli. It aids in differentiating early stages of malignant sclerosis of the kidneys from the benign form. In chronic cases it indicates a fatal outcome in two years at longest. Eclampsic amaurosis is encountered as part of the syndrome of eclampsic uremia. The fundus is normal except for the occasionally noted edema of the papilla. The prognosis is generally favorable. In exceptional cases it may be combined with albuminuric neuroretinitis. Lumbar puncture is recommended in treatment.

Pseudo-uremic disturbances in the visual apparatus are encountered exclusively with sclerosis of the kidney. They are generally briefly transient, and are probably traceable to arteriosclerosis and spasm of the cerebral arteries. Among his 51 cases of acute diffuse glomerular nephritis, two of the men had albuminuric neuroretinitis and although the kidney disease soon retrogressed, the neuroretinitis persisted unmodified for the months the men were under observation. One of the men had, besides, acute eclampsic uremia with transient amaurosis. Among the total 150 cases of acute diffuse glomerular nephritis, 25 of the men died during the uremic stage; in the other 125 cases the men recovered or the disease passed into a chronic phase. In 74 in this group there were no signs of azotemia at any time, and no tendency to albuminuric neuroretinitis was ever detected in any in this group, nor in 48 cases of acute and chronic nephritis, 15 of focal nephritis, and 20 of chronic diffuse glomerular nephritis in the second phase, but it was pronounced in 45 per cent. of the 20 cases in the third stage, also in 52.8 per cent. of 36 cases of malignant sclerosis of the kidneys.

86. **Agglutination of More than One Infectious Germ.**—Baerthlein relates instances of para-agglutination of the saprophytic germs with the cholera vibrio, typhoid or paratyphoid, Flexner or Y dysentery bacilli in various combinations. In one case, for example, there was agglutination for cholera at 1 : 50, for typhoid at 1 : 200 and for dysentery bacilli at 1 : 100, with marked agglutination of certain bacteria found which are not usually regarded as pathogenic. With a syndrome suggesting dysentery, for instance, the only germs that could be cultivated were some resembling the colon bacillus, but there was agglutination with these bacilli at 1 : 2,000 when tested with Flexner dysentery bacilli. In the blood serum there was clumping of the latter and also of the colon bacilli at 1 : 400. The cure was soon complete under treatment as for dysentery. He emphasizes the importance of this para-agglutination as an aid in the diagnosis of typhoid and of dysentery in particular. It differs from coagglutination in that the latter is a group reaction from receptors naturally and permanently allied, while with para-agglutination the common receptors are only a transiently acquired property. It seems likely that the colon and coccus strains in question adsorb the agglutinating substances produced by the dysentery or other bacilli. Baerthlein has been able to induce para-agglutination in vitro with ordinary colon bacilli kept for a time in contact with killed cultures of cholera, typhoid, paratyphoid, or dysentery germs.

89. **Relapsing Fever and Lice.**—Töpfer states that he found the spirochetes of relapsing fever proliferating in lice after they had bitten relapsing-fever patients. The spirochetes retained their shape, motility, virulence and staining properties, and no special developmental phases were noted. Infection does not seem to be transmitted by the bite of the louse, but the spirochetes released by crushing of the louse get into the lesions made by scratching.

91. **Diagnosis of Gas Gangrene.**—It has been proposed to detect incipient gas gangrene by determining the specific gravity of an excised scrap of muscle. Biermann merely strikes the suspected region with the thinnest pincers available, held as a tuning fork is held. When there is accumulated gas, even in the depths of the muscle below, there is a dull note like the cracked-pot sound on percussion of a tuberculous cavity in the lung. The exact area involved can be outlined in this way. The odor of a gas phlegmon is so unmistakable that there is little danger of confusing the findings with a simple emphysema in the skin.

95. **To Keep Sharp Instruments from Rusting.**—After thorough mechanical cleansing, Frank stands the instrument in a bottle filled with alcohol containing 5 or 10 per cent. soap spirit. The addition of the tincture of soap prevents rusting. An illustration is given of a Pravaz syringe thus kept ready for use. It is filled with the fluid, and stood upright over a bottle, the needle projecting nearly to the bottom of the bottle, and the handle held between two nails driven into the wall.

Wiener klinische Wochenschrift, Vienna

October 19, 1916, XXIX, No. 42, pp. 1321-1352

96 *Typhus. (Zur Epidemiologie und Prophylaxe des Fleckfiebers.) J. Fonyo.—p. 1321. Concluded in No. 44, p. 1397.
97 *The Behavior of the Mononuclear Leukocytes in Malaria. W. Zweig and J. Matko.—p. 1328.
98 *Parenteral Injection of Proteins in Treatment of Eye Affections. (Therapeutische Erfahrungen bei parenteraler Injektion von Protein-körpern und ihren Spaltprodukten in der Augenheilkunde.) W. Friedländer.—p. 1329.
99 Subretinal Echinococcus Disease; Two Cases. (Zwei Fälle von subretinalem Zystizerkus.) F. v. Herrenschwand.—p. 1332.
100 *Pathology of Chvostek's Sign: the Facialis Phenomenon in Connection with the Tonsils. E. Pulay.—p. 1334.
101 Fistula from Gravity Abscess Persisting for Two Years after Intramuscular Injection of Salvarsan. (Eigentümliche Folgen einer intramuskulären Salvarsaninjektion.) R. Polland.—p. 1339.

96. **Typhus.**—This monograph on typhus and lice presents the present sum of our knowledge on the subject. Fonyo states that the body louse dies in five days if it is unable to feed on human blood during that time. The nits hatch out in two or three days, and if the young lice are unable to get blood they also die within five days. Consequently closing a lice-infected building for two or three weeks, all human beings keeping away from it, kills off all the lice, young and old. The outer covering of the louse is extremely resistant to water, acids and alkali, but its respiratory apparatus is exceptionally sensitive to gases and fumes, and they pass thence into the protoplasm. This explains the effectual action on them of mercurial salves, as they breathe the fumes. Ethereal oils, benzin and 10 or 25 per cent. water of ammonia (*Ammoniak*) have also been found effectual in warding them off or destroying them. Lice are so prolific that Leuwenhock has estimated that the progeny of a single louse can within eight weeks total 5,000. Fonyo emphasizes further that to get rid of vermin all the persons involved must be rid of vermin all at practically the same time. If even one person is overlooked, the success of the whole measure is compromised.

97. **Behavior of the Mononuclears in Malaria.**—Zweig and Matko have been making a comprehensive study of the modifications in the blood picture under the influence of malaria, with and without quinin. They describe them in detail, calling attention in particular to the segmentation of the mononuclears in the blood stream.

98. **Parenteral Injection of Protein in Treatment of Trachoma and Other Eye Diseases.**—Friedländer made intra-

gluteal injections of 10 c.c. milk in forty-two cases of trachoma, all of the severer type. The effect was surprisingly good. A number of particularly demonstrative cases are reported in detail, as also some of rebellious catarrhal ophthalmia which promptly subsided under one or two of the injections four days apart. The interval was never less than forty-eight hours; he always waited for the temperature to return to normal. In some of the cases a long previous course of office treatment had given no relief, but the earning capacity was restored the day after a single injection at 5 p. m. One hour afterward the temperature was 36.6 C.; at four hours 36.8; at seven hours, 37; at 3 a. m. 37.5; at 6 a. m. 36.1, and at 4 p. m. 36.2 C. In conclusion he remarks that the epidemic of trachoma was thus stamped out so promptly and effectually that he has had no opportunity since to apply the method.

100. **Significance of the Facialis Phenomenon.**—Pulay found Chvostek's sign pronounced in 24.6 per cent. of 211 male adults in the hospital in his charge, and, with scarcely any exceptions, in every one of the positive cases there was macroscopic evidence of tonsil disease. The intensity of the facialis phenomenon seemed to be proportionate to the severity of the tonsil lesions. With a unilateral Chvostek sign the tonsil on that side was the one affected. These findings testify that the facialis phenomenon must be regarded as almost invariably a sign pointing to pathologic conditions in one or both tonsils. The findings in sixty-three cases are tabulated. Pulay adds that the presence of the Chvostek sign early in pulmonary tuberculosis is thus explained, and it suggests that prompt treatment of diseased tonsils may prove an important aid in treatment in all forms of acute and chronic disease. Plugs in the tonsils, he continues, may not set up any appreciable local inflammation and yet they may be responsible for lassitude, drowsiness, slight rise in temperature and depression—a condition often labeled neurasthenia from ignorance of the tonsil plugs. He adds that there was probably unsuspected tonsil disease in the cases of tetany in which the Chvostek sign has been recorded.

Policlinico, Rome

November 19, 1916, XXIII, No. 47, pp. 1357-1382

102 *Autoseroterapy of Tuberculous Meningitis. (Meningite tubercolare. Tentativi di cura con re-iniezioni sottocute del liquido cefalo-rachidiano del paziente.) P. Tilli.—p. 1357.
103 Triple Vaccines. (Vaccinazioni combinate.) A. Castellani.—p. 1361.
104 Causes of Error in Roentgen Localization of Projectiles in the Tissues. F. Ghilarducci.—p. 1363.

November 26, No. 48, pp. 1383-1414

105 Milk Hygiene. (Studi sulla produzione igienica del latte. Importanza e controllo della microflora mammaria per la selezione degli animali lattiferi.) C. Gorini.—p. 1383.
106 Field Hospital Unit. (A proposito di un giudizio sulle Unita chirurgiche al campo.) B. Rossi.—p. 1387.
107 Progressive Hysteric Myoclonus. E. Trocello.—p. 1395.
108 Aphasia in Typhoid in Children. E. Iraci.—p. 1400.
109 Neuralgia in the Feet. (Nevralgie ai piedi da freddo.) A. Pagliuso.—p. 1402.

102. **Autoserotherapy in Tuberculous Meningitis.**—Tilli reinjected subcutaneously the cerebrospinal fluid, obtained by lumbar puncture, in three cases of tuberculous meningitis in children 3 months, 18 months and 8 years old. In the youngest child the disease subsided and there was an interval of health, but the meningitis returned ten months later and proved fatal. The 8 year old child recovered and has had no return of the trouble during the three years to date, but the meningitis had entailed blindness and the head is much enlarged. The other child recovered completely under the subcutaneous injections of 1, 2 or 3 c.c. of the lumbar fluid, injected every third day, with tonics and massage. In a month the child had improved so it could be taken into the country and the cure was soon complete and has been permanent during the two years to date, with no sequels. This was the only case in which no bacteriologic tests were made.

Brazil-Medico, Rio de Janeiro

November 11, 1916, XXX, No. 46, pp. 361-368

110 Pigeon Protozoon Disease. (Pesquisas sobre o "Hemoproteus columbae".) H. de B. Aragão.—p. 361. Concluded.
111 *Chagas' Disease Involving the Serous Membranes Near the Diaphragm. (Polyorrhomenose e cruzi-trypanose.) P. Valladares.—p. 362.

November 18, No. 47, pp. 369-376

112 *Superficial Fungus Infection. ("Aleurophora benigna" N. g. n. sp.) O. de Magalhães.—p. 369.

111. **Chagas' Disease with Polyserositis.**—Valladares calls attention to the form of Chagas' disease in which the serous membranes adjoining the diaphragm are affected. He suggests the term polyorrhomenosis for this involvement of the serosas. He also suggests the term cruzi-trypanosis for Chagas' disease, which seems to be caused by the *Trypanosoma cruzi*. He has encountered several cases of the disease within a year in which the predominating symptoms were those indicating inflammation of one or more of the serous membranes adjoining the diaphragm (Picchini's syndrome). This adds another form of Chagas' disease to those already on record.

112. **Fungus Skin Affection.**—De Magalhães has recently encountered five cases of a benign superficial affection, confined mainly to the thorax and causing no subjective disturbance except possibly a little pruritus. The parasite seems to be of the hyphomycetes family. He describes its characteristics saying that it seems to be localized exclusively in the horny layer of the skin.

Prakticheskiy Vrach, Petrograd

1916, XV, Nos. 28-29, pp. 216-227

113 Camphor in Treatment of Disease of the Respiratory Organs. L. L. I. Sheiniss.—p. 217. Continued.

No. 38-39, pp. 276-287

114 Appendicitis in Strangulated Inguinal Hernia. (K voprosu ob app. v ushtshemlennoi pakhovoi gruizhie.) V. M. Volkovich.—p. 276. Commenced in No. 36, p. 264.
115 *Acute Articular Rheumatism. (Ob ostrom sustavnom revmatizmie.) L. M. Frenkel.—p. 278. Conclusion.

115. **Acute Articular Rheumatism.**—Frenkel's experience with patients with acute febrile polyarthritis has convinced him of its remittent or intermittent character. This is the reason, he explains, why salicylic medication has obtained such a vogue in the treatment of the disease. As the natural intermission comes on after taking the drug, the attenuation of the symptoms is ascribed to the drug, when in fact the drug is not responsible for it. Parallel cases in his clinic passed through parallel phases of exacerbation and remission, whether any salicylate had been given or not. In short, he declares in conclusion, the administration of salicylic acid preparations as a specific in the treatment of rheumatic polyarthritis is based on a grievous misapprehension.

Russkiy Vrach, Petrograd

1916, XV, No. 41, pp. 961-984

116 Salt in Preservation of Cadavers and Anatomic Preparations. II. (O primienenii povarennoi soli dlya sokhraneniya trupov i anat. preparatov.) G. M. Yusifoff.—p. 961.
117 Heubner's Error in Question of First Dentition. (Zabluzhdenie prof. Heubner' a—Berlin—v voprosie o 1-om proriezivanii zubov u dietei.) A. O. Karnitsky.—p. 962. Concluded in No. 42, p. 989.
118 Import of Fusiform Bacilli in Pathology of Scarlet Fever. (Znachenie veretenoobraznikh bakterii v patologii skarlatini.) V. N. Klimenko.—p. 966.
119 War Wounds of the Chest. (Pronikaiushtshiya ognest. raneniya grudnoi klietki.) S. K. Solovieff and G. K. Videman.—p. 969.
120 Mode of Spread and Prophylaxis of Typhus. (K voprosu ob epidemiologii i kontagioznosti sipnogo tipha.) L. A. Silberberg.—p. 972.
121 Treatment of War Fracture of the Femur. (O liechenii perelomov bedrenoi kosti po dannim russkoi i inostrannoi literaturi za tekushtshuiu voinu i na osnovanii 67, sobstvennikh sluchaev.) M. L. Nobel-Oleinikova.—p. 976. Concluded in No. 43.—p. 1017.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

November 11, 1916, II, No. 20, pp. 1769-1848

122 *Origin of Hallux Valgus. (Over het ontstaan van den hallux valgus.) J. G. Milo.—p. 1774.
123 *The Parathyroid Glands. (Epitheeljichaampjes.) H. A. Vermeulen.—p. 1779.
124 *Phagocytosis of Red Corpuscles by Polynuclear Leukocytes. (Phagocytose van erythrocyten door polynucleaire leucocyten.) L. Schaap and J. W. Wolff.—p. 1789.

122. **Origin of Hallux Valgus.**—Milo has had casts taken of the feet in a dozen cases of hallux valgus, and study of them has convinced him that the generally prevailing views as to the origin of this trouble are erroneous. It is in reality the inevitable consequence of loss of the transverse elasticity of the fore part of the foot. When the fore part of the foot has lost its transverse resilience from insufficiency of the transverse muscle, it may entail metatarsal neuralgia, Morton's disease, ostitis, etc., and dislocation of the great toe—hallux valgus—is practically inevitable. He gives an illustration of the cast from the foot of one young woman. Her feet had been normal until a tuberculous process developed in the middle metatarsal bone. This was operated on successfully but the transversus pedis muscle was severed. Although the foot seems clinically normal, yet hallux valgus followed within three months. He emphasizes the necessity for detecting early this spreading of the foot and counteracting it, thus warding off secondary hallux valgus.

123. **The Parathyroid Glands.**—Vermeulen is a professor in the Veterinary College at Utrecht. He here describes and illustrates the parathyroids as found in domestic animals, and reviews the literature on the subject. To obtain parathyroids for therapeutic purposes he has found that for various reasons the sheep seems to be the best available animal. The parathyroids in them are large and comparatively accessible after removal of the salivary glands. The stroke to slaughter the animal should be made a little lower than is customary, to avoid injury of the parathyroids, and the skin should be removed with care. The sheep should also be over two years old. This can be told from the teeth, as he describes in detail. The parathyroids in hens are also available; they are small, but compact and accessible. The parathyroids offered now on the market are not always reliable, and his analysis of the anatomic conditions readily explains the mistakes liable to be made in removing the parathyroids.

124. **Phagocytosis of Red Corpuscles by Polynuclear Leukocytes.**—The experiments described were made with sheep or rabbit red corpuscles injected into the peritoneum of guinea-pigs. The abdominal fluid was withdrawn by puncture at hour intervals afterward. The red corpuscles were found incorporated in the polynuclear leukocytes, which had accumulated in large numbers in the peritoneum. By the end of the fifth hour the large mononuclears take up the task.

Hygiea, Stockholm

1916, LXXVIII, No. 20, pp. 1553-1616

125 *Modification of Skin Tuberculin Reaction after Repeated Application of This Test. (Iakttagelser över tuberkulinsensibiliseringen vid v. Pirquets reaktion och dess diagnostiska betydelse.) G. Lindberg.—p. 1553.

126 Present Status of Knowledge in Regard to Action of Light on the Living Organism. (Om ljusets inverkan på levande organismer.) V. Malmström.—p. 1579.

No. 21, pp. 1617-1680

127 *Pathology of the Movements of the Eyes and Diagnostic Import. (Till blickrörelsernas patologi.) N. Antoni.—p. 1617.

128 *Means to Promote Lactation. (Några erfarenheter angående digivning.) H. Ernberg.—p. 1636.

125. **Diagnostic Findings on Repeated Skin Tuberculin Tests.**—Lindberg has applied repeated skin tuberculin tests to 129 children in the hospital and sanatorium with which he is connected. The ages ranged from 1 to 12 years. The tuberculin skin test was applied to each arm and again after an interval of a week. The reaction twenty-four hours after the test and a week later, was measured in both the axial and transverse diameters. When neither diameter was over 5 mm. the reaction was recorded as negative. The findings are tabulated for the entire number, with further details as to the general condition, etc. Of the 129 children, 33.3 per cent. showed a much more pronounced response at the second double test than at the first. In 60 per cent. the response was weaker than at the first; in 6.7 per cent. there was but slight difference.

Classifying the cases in three groups as certain active tuberculosis, probable tuberculosis, and the nontuberculous, he found this intensification of the reaction, or positive sensitization, in only 5.3 per cent. of the 36 cases in the first group; in 28.5 per cent. of 16 in the probable group, and in 78 per cent. of the 18 nontuberculous. These data confirm the assumption of a connection between this sensitization and the phases of tuberculosis, in that as a rule the response to the second application of the test is weaker when there is active tuberculosis, and stronger when it is latent. Of the total 129 children, 75 had given a positive response when first tested. In Bessau-Schwenke's research along similar lines, 129 of 153 children had responded with a positive reaction in the Pirquet test. The proportional findings with the repeated tests harmonized in both series, confirming the reliability of the above deductions. In a further series, Lindberg obtained the positive sensitization in only 15 per cent. of 20 children with manifest tuberculous processes in bones or joints. A fourth table gives the findings in 15 supposedly healthy children and 15 healthy adults.

The results of the whole research testify that with inactive tuberculosis the response to the repetition of the tuberculin skin test is more pronounced than at the first test, while the reverse is the rule with active tuberculosis. The attenuation of the response to a second application of the test has thus a favorable instead of an unfavorable significance. He found it most instructive to record the sum of the diameters of the reaction, including both the twenty-four hour and one week measurements.

127. **Diagnostic Import of Abnormal Conjugated Movements of the Eyes.**—Antoni reports in detail an instructive case of left hemiplegia with conjugated deviation of head and eyes to the right, positive Wassermann reaction and typical response to the Bárány caloric and other tests, all testifying to an extensive lesion in one hemisphere. The phenomena observed confirm the assumption that an antagonistic inhibiting impulse proceeds from the center on the opposite side, and this persists after destruction of one center. This explains the different behavior during and outside of coma, according as the brain is capable of the inhibiting action or not. As consciousness is regained, the inhibiting function of the intact center is restored. Antoni's research during general anesthesia has apparently disproved certain current assumptions in regard to vestibular reflexes, as he describes, and also in regard to a possible subcortical center and the so-called syndrome of Deiter's nucleus.

128. **To Promote Lactation.**—Ernberg remarks that nowhere in practical medicine is prophylaxis of such vital importance as in pediatrics, and means to ensure breast milk for the child take the lead in this respect. When the mother does not yield enough milk in the first five or six days this may be because the efferent passages are not fully permeable. The amount of milk is also liable to dwindle during the third or fourth week, probably because the woman is resuming her usual household tasks before she is quite strong enough. In all these cases the milk secretion has to be stimulated, and the natural stimulus for this is the sucking of the child. The oftener it sucks the better the breast responds, but it must suck vigorously to be effectual. In such cases he advises letting another babe nurse at the same time or at alternate times with the mother's own babe. It may be necessary for this to have the woman go to some hospital or asylum where other babies are available. By this means he has restored lactation even when it had been suspended for some time, having the breast nursed eight or ten times a day. He gives the charts from four such cases. In one after three weeks of nursing and two weeks of exclusive bottle feeding, ample lactation was restored in three weeks. In another, after four breast weeks and five bottle weeks, it took seven weeks for ample lactation. In the other cases there had been no breast feeding at all, but after five or six weeks of bottle feeding the breast milk was gradually brought up to 600 gm. in four weeks in one case and to over 1,000 gm. in nine weeks in the other. Three were primiparae. He supplements the insufficient meal with artificial food, weighing the infant after each breast feeding and giving enough of the bottle food to bring the total up to the desired amount. As the mother is tranquilized by seeing that the child gets enough nourishment, this peace of mind has a further favorable influence on the lactation, and the amounts of supplementary artificial food required grow less and less.